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ABSTRACT

The goals of this teaching module for junior and senior high school students are to introduce the subject of trapping, cover the basics of trapping and why it is important, and explain how it uses an important renewable wildlife resource. The module promotes the education of youth and adults in the positive aspects of trapping for sport and recreation and as a form of wildlife management, incorporates teaching techniques, and illustrates the tools of trapping and their practical, effective application. Participants will learn about the responsibilities that they must accept if they choose to become trappers. The material is organized into five 50-minute presentations for classroom use, adaptable to other teaching environments. Lessons cover the importance of trapping, its history, Missouri furbearers, trapping regulations, tools of the trade, how to read signs, locate and make trap sets, humanely handle trapped animals, and care for the fur. Upon completion of the course, a student should be able to accomplish 15 objectives (i.e., list 5 examples of good behavior that a responsible, concerned, ethical trapper would practice; write a paragraph explaining the reasons why there are regulations for trapping; list the 3 types of traps and briefly describe how each works). (Author/AN)

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TRAPPER EDUCATION

PRIMITIVE SKILLS SERIES

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A PROGRAM OF THE MISSOURI DEPARTMENT OF CONSERVATION

OUTDOOR SKILLS EDUCATION MODULES

Missouri's natural resources belong to all its citizens. More and more people are going outdoors to hunt, fish, boat, hike, camp, explore, and learn about nature. The skills they use in the outdoors can have a direct effect on resources. That's why it is important to educate youth and adults in how to use the outdoors wisely and responsibly through schools, community groups, and agencies.

The Outdoor Skills Education Unit of the Department of Conservation, in cooperation with the Department of Elementary and Secondary Education, is developing educational programs to teach Missourians how to use wisely and skillfully the state's many resources for outdoor recreation. The materials, presented as modules, can be used individually or combined in a series by schools, camps, clubs, scouting groups, and other youth or adult organizations. Topics include the shooting sports, casting and angling, trapping, archery, backpacking, camping, aquatics, map and compass, and other skill areas.

Each module is a self-contained unit that includes information on the subject, lesson plans, activities, class exercises, tests, suggested visual aids, and references. Experienced instructors who have taught the subjects and successfully used the activities have written the modules.

For additional information on conservation and outdoor education programs, write the Education Section, Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102.



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in 1976.*



INSTRUCTOR MANUAL

TRAPPER EDUCATION

PRIMITIVE SKILLS SERIES

**MISSOURI DEPARTMENT OF CONSERVATION
EDUCATION SECTION**

By Ken Kelm, Ralph Duren, Dave Erickson

**Cheryl Riley Powell, Editor and
Production Coordinator
Martha Green, Production Assistant
Donna Drew, Illustrator**



**For information, contact:
Outdoor Skills—Education Section
Missouri Department of Conservation
P.O. Box 180
Jefferson City, MO 65102
314/751-4115**

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About the Authors

KEN KELM

As Wildlife Damage Control Agent for the Missouri Department of Conservation, Ken teaches Missouri livestock producers how to effectively and selectively control their livestock losses to predators. He also conducts trapper training programs for youth and helps Missouri residents with other wildlife problems such as blackbird and deer damage.

Raised in southwest Missouri, Ken has trapped since his early days growing up on a farm. Being a self-taught trapper, he recognizes the need for trapper training programs. He plans to teach his two sons and daughter to share the trapline with him and his wife, Retta.

Ken is an active member of the Missouri Trappers Association and the Primitive Riflemen of Missouri. He participates in several rendezvous each year and enjoys reliving the primitive, mountain-man style. He also enjoys canoeing, hunting, fishing, and "sign" reading.

RALPH DUREN

Ralph also works for the Department as a Wildlife Damage Control Agent. He attended Jefferson Junior College and received a bachelor's degree in agriculture from the University of Missouri. Before he was hired by the Department of Conservation, he worked for the University in ruminant nutrition research. Ralph's appreciation and love of the outdoors was developed as a young boy trapping, hunting, and fishing with his father.

Active in several organizations, Ralph is on the Board of Directors of the Missouri Trappers Association; is past president of the Central Missouri Chapter of the National Wild Turkey Federation; and is secretary of the Missouri State Chapter of the National Wild Turkey Federation. He also has several trophies he won calling turkeys with his voice at turkey calling contests. Ralph and his family live in Hermann.

DAVE ERICKSON

Dave was hired by the Department of Conservation in February 1977 as a Wildlife Research Biologist in charge of predator and furbearer studies. Since then he has worked with Missouri's furbearer management program and research dealing with bobcats, raccoons, muskrats, and minks. He determines harvest and market trends for furbearers and monitors population levels.

Dave holds a B.S. degree from the University of Michigan and an M.S. degree from Pennsylvania State University. He conducted a wild turkey census for the Pennsylvania Game Commission and has worked as a biological technician for the U.S. Fish and Wildlife Service.

Dave's interests in natural resources and wildlife management carry over to his spare time also. He enjoys fishing, hunting, hiking, camping, archery, boating, and

photography. Dave, his wife, and young daughter live in Columbia.

How to use this module

This module has been produced for you who teach or work with youth. The material has been written with the classroom teacher in mind, but it also can be adapted by leaders of camps, 4-H clubs, scouting organizations, and other youth groups. A variety of information and activities has been included to make the module useful to as many groups as possible. It may be used individually or combined with other modules for a more extensive course.

The Trapping module contains:

Introductory Information—Questions such as "Why teach this subject?" are answered. Goals and objectives approved by the Missouri Department of Elementary and Secondary Education are established. A brief history of the subject is given as background and a means of introducing the subject.

Ethics—This module addresses some of the ethical concerns and responsibilities of individuals who trap Missouri furbearers.

Subject Information—This section provides the information necessary to teach students the importance of trapping, what furbearers are trapped in Missouri, trapping equipment and how it operates, track identification, and how to locate and set traps, and how to properly care for the fur of animals.

Lesson Plans—Field-tested methods of teaching this material are provided in five lesson plans. The time for each lesson is only suggested and will vary with instructors. Equipment and materials needed for the activities are listed.

Student Handouts—A crossword puzzle is included.

Suggested Written Test—If you are a classroom teacher and want to evaluate your students' mastery of the material you have been teaching, a sample written examination is included along with a suggested skills test. Test questions are keyed directly to the objectives for the module.

Glossary and Bibliography—These are provided as additional information which may help in teaching the subject in more detail.

Outdoor Skills Education Specialists are assigned to seven regions throughout the state. They will assist you in obtaining materials and scheduling equipment and films that are available from the Department of Conservation. Check the last page of this module for names, addresses, and regions.

Assistance also is available from the Department's Wildlife Damage Control Agents and from members of the Missouri Trappers Association. Training and certification may be obtained through the Department of Conservation.

Review Committee

The material in this module has been reviewed by the following people:

W. E. "Pete" Askins
Research, Development and Design Department
Woodstream Corporation
Lititz, PA

Jim Duncan, Exhibits Specialist
Missouri Department of Conservation
Jefferson City, MO

Erik K. Fritzell, Assistant Professor
School of Forestry, Fisheries, and Wildlife
University of Missouri
Columbia, MO

Glen Sanderson, Head of Wildlife Research
State Natural History Survey Division
Illinois Institute of Natural Resources
Urbana, IL

Don Starkey, President
Missouri Trappers Association
Montgomery City, MO

Robert M. Taylor, Ph.D.
Director of Health, Physical Education, and Recreation
Missouri Department of Elementary and Secondary
Education
Jefferson City, MO

Olan K. Yokum, Secretary-Treasurer
Missouri Trappers Association
Potosi, MO

The Missouri Department of Conservation

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J. Ernest Dunn, Jr.
Carl DiSalvo
Jack Waller

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Patti Daley, Secretary

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Charles D. Jordan, Knob Noster
David B. Knisley, Fenton
Al Palladino, Marthasville
Jim Pyland, Kearney
Harold W. Thiele, St. Louis
Jack C. Woodhead, Eureka

Questionnaire

Please help us evaluate the effectiveness and use of our materials by completing the following questionnaire and mailing it to the Missouri Department of Conservation, Outdoor Skills Education, P.O. Box 180, Jefferson City, MO 65102.

How did you obtain a copy of this module?

*Have you used this material?
Why or Why not?*

Your position

Age group you teach

CONTENT AND FORMAT

*Were you given enough information
to teach this course?*

Enough _____ Not Enough _____ Too Much _____

Comments: _____

*Was material presented in a manner
easy for you to use?*

Yes _____ No _____

Comments: _____

*What information would you add
or subtract?*

LESSON PLANS AND ACTIVITIES

*Did you use the lesson plans?
Were the time periods allowed for
activities adequate?*

All of them _____ Some of them _____ None of them _____

Adequate _____ Too much time _____ Not enough time _____

Comments: _____

*Which activities did students
most enjoy?*

*What additional activities
would you include?*

*What suggestions do you have for
future modules?*

*What topics would you like to see
covered?*

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Topic Outline

History and Introduction

- I. Brief History of Trapping
- II. Importance of Trapping
 - A. Recreation and economics
 - B. Wildlife management
 - C. Animal damage control
- III. Trapping Regulations
- IV. Ethics

Furbearers of Missouri

Drawings and information on the furbearers in Missouri

Tools of the Trade

- I. Types of Traps
 - A. Foot-hold traps
 - 1. Long spring trap
 - 2. Coil spring trap
 - 3. Underspring jump trap
 - B. Body-grip traps
 - Conibear
 - C. Cage traps
 - 1. Havahart
 - 2. P & S
 - 3. Tender Trap
- II. Other Equipment
 - A. Upland trapping equipment
 - B. Wetland trapping equipment
- III. Scents, Lures, Baits
- IV. Care of Traps
 - A. Inspecting
 - B. Pre-rusting
 - C. Dyeing
 - D. Waxing
 - E. Storing

Identifying Tracks and Signs of the Furbearers of Missouri

- I. Upland Species
 - Tracks and track patterns of badger, bobcat, coyote, gray fox, red fox, mink, opossum, raccoon, and skunk.
- II. Semi-Aquatic Species
 - Tracks and track patterns of muskrat and beaver.

How to Locate and Make Trap Sets

- I. Double Trap Scent Post Set
- II. Single Trap Scent Post Set
- III. Dirt Hole Set
- IV. Pocket Set
- V. Blind Set
- VI. Runway Set
- VII. Bait Set
- VIII. Scent Set
- IX. Mound Set

**How to Humanely Handle
and Kill Trapped Animals**

Information on how to handle, release or kill trapped
animals

**How to Properly Care for the
Fur of Animals**

- I. Skinning for the Cased Pelt
- II. Skinning for the Open Pelt
- III. Fleshing, Stretching, and Drying Pelts
- IV. Tanning Skins

Introduction

Goals of the module

To introduce the subject of trapping and to cover the basics of trapping, why it is important, and how it uses one of Missouri's important renewable wildlife resources.

Purpose of the module

Trapping has come under severe attack for being an inhumane and unnecessary sport. Anti-trapping literature is abundant and much of it is aimed at school-age children. Trapping has become an emotional issue with facts frequently distorted.

This module is an attempt to promote the education of youth and adults in the positive aspects of trapping, not only as a sport and recreation, but also as a form of wildlife management. For those who are interested in learning to trap, the module incorporates the teaching techniques of the trapper training program offered by the Missouri Department of Conservation. Instructors who successfully complete the Trapper Training Short Course will be able to use this module to teach their students how to trap. The module is not designed, however, to produce skilled and expert trappers. Such a goal would be far more than can be covered in any reasonable period of classroom time. Students, however, can be exposed to the tools of trapping and their practical and effective application. Prospective participants will learn about the responsibilities that they must accept if they choose to become trappers.

Those instructors who would like additional help or training may call upon the Department of Conservation or contact a trapper in their community. Members of the Missouri Trappers Association frequently are willing to help instruct young people in the proper techniques of trapping. They also will have equipment to use for demonstrations.

Content of the module

The Department's trapping module is written for use with junior and senior high school students. This material is organized into five 50-minute presentations for classroom use; however, it can be adapted to other teaching environments. Lessons cover the importance of trapping, its history, Missouri furbearers, trapping regulations, tools of the trade, how to read signs, how to locate and make trap sets, and how to care for the fur.

Instructors should let students see and handle actual traps so they will better understand what is being discussed. Teaching aids such as traps and films may be scheduled by contacting the Department of Conservation.

All potential instructors are encouraged to take the Department's Trapper Training Short Course before they teach trapping.



Objectives

Upon completion of a course in trapping, a student should be able to do the following:

1. List three functions of trapping in the state of Missouri.
2. List five examples of good behavior that a responsible, concerned, ethical trapper would practice.
3. Write a paragraph explaining the reasons why there are regulations for trapping.
4. List five Missouri furbearers that are legal to trap and briefly describe where to set a trap to capture each.
5. List the three types of traps and briefly describe how each works.
6. When shown drawings of the three types of traps, correctly identify the parts of each trap.
7. Write a short paragraph explaining why body-grip traps usually are not set in upland areas.
8. Correctly identify tools used in trapping and explain for what purpose they are used.
9. Briefly describe the steps that should be taken to make a new trap ready for trapline use.
10. When shown drawings, correctly identify tracks of the Missouri furbearers that are trapped.
11. When shown trap sets or drawings of sets, identify which furbearers are being trapped by the particular sets.
12. Identify the Missouri furbearer that is an endangered species and not allowed to be trapped.
13. When handed a trap, be able to properly and safely set it.
14. Demonstrate how to correctly make at least one trap set.
15. Complete the crossword puzzle on the subject of trapping, its history, and the furbearing animals of Missouri.

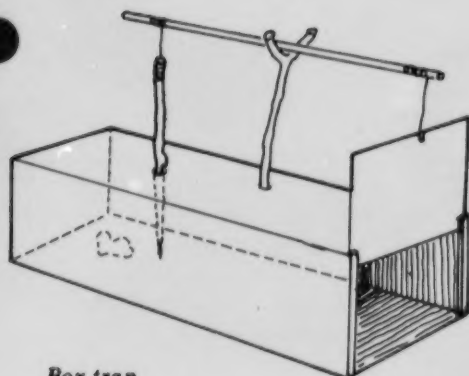
Brief History



Snare

The fur industry in North America has been a major factor in the exploration and settling of our country. When the first settlers arrived on the eastern coast of the United States in the early 1600s they trapped for food, clothing, and to protect their crops and livestock. The native Indians were masters with pitfalls, deadfalls, and snares. Captain John Smith traded with the Indians supplying them with guns in exchange for beaver and other furs. From the time that the colonists at Plymouth shipped furs back to England, the fur trade in America has flourished.

In 1670, royalty and wealthy businessmen in England chartered the Hudson's Bay Company. They hired trappers and traders to go into the wilderness seeking new sources of furs. Other trading companies soon were established elsewhere in North America. Adventurous men in search of furs were responsible for opening trails westward for settlers to follow. One famous trapper, Daniel Boone, blazed the Cumberland Trail through the Cumberland Mountains to Kentucky and later moved on to Missouri.



Box trap



Early leg-hold trap

In 1763, Pierre Laclede traveled up the Mississippi River from New Orleans to establish a trading post in Missouri. He decided the best place for a trading post would be at the confluence of the Missouri and Mississippi Rivers—thus the city of St. Louis was established. This “trading post” soon became the center of the country’s fur industry.

From St. Louis, trappers and traders went up the Missouri River and west to the Rocky Mountains in search of furs. Many large fur companies were based in St. Louis where trappers congregated in the spring to sell their furs. Some of those companies, such as the Taylor Fur Company, still exist today.

The early trappers opened the west to civilization. John Colter, a trapper based in St. Louis, was the first white man to discover the geysers in what is now Yellowstone National Park. Ewing Young opened the southwest trail to California. Jedediah Smith opened both the south pass of the Rocky Mountains through which the Oregon Trail passed a few years later and a pass through the Sierra Nevadas to California. It was the famous trapper and mountain man Jim Bridger who discovered the Great Salt Lake, and the famous trapper and scout Kit Carson who guided General John C. Fremont on two explorations of the west. Lewis and Clark trapped to collect specimens for examination and food. The famous naturalist John James Audubon also was a trapper.

Early trappers, like the native Indians, used pitfalls, deadfalls, and snares, as well as steel traps, which were invented in the 15th or 16th century and first used in France and Germany. Early steel traps were handmade one trap at a time by blacksmiths using a forge.

In 1823 in New York, Sewell Newhouse began manufacturing steel traps with interchangeable parts on a multiple production basis. Newhouse joined the Oneida Community and thus produced the Oneida-Newhouse brand of steel leg-hold traps. Later, when the Oneida Community was disbanded, the trap company was purchased by the Animal Trap Company of America, Lititz, Pennsylvania, which is now the Woodstream Corporation. Woodstream manufactures Victor, Oneida, Conibear, and Newhouse brands of traps.

The perfection of the leg-hold trap greatly increased the trapper’s effectiveness, especially in capturing wary long-legged predators such as the wolf, coyote, fox, and bobcat. These traps, more appropriately called foot-hold traps, continue to be improved. They now are manufactured with smooth jaws, no teeth, and some have offset jaws which do not come together completely. This feature minimizes loss of circulation to the animal’s foot or leg.

From its beginning, Missouri has been an important state in the fur industry. Between 1920 and 1950, cash paid to Missouri trappers amounted to more than the original purchase price of the entire Louisiana Purchase. Presently

the furs harvested in Missouri are valued at more than 8½ million dollars annually, which in turn generates more than 60 million dollars to the state's economy.

With the fur industry and trapping playing such an important role in the heritage of our state, it is easy to see why Missouri is still among the top raw fur-producing states in the country.

Importance of Trapping

Furbearer trapping is an activity rich in Missouri's history and important even in today's modern society. Furbearer populations are quite capable of withstanding regulated harvesting.

Most wildlife populations possess very high reproductive abilities. Their strategy for survival is to produce many more young each year than can possibly survive to the following breeding season. This reproductive capacity is for the most part offset by comparably high death rates or mortality, thus explaining why wild animals don't overrun the landscape.

Furbearer harvests generally do not add to this annual death rate. They are part of it. Biologists commonly refer to "habitat carrying capacity" as the maximum number of animals a specific land area is capable of supporting during the most stressful time of the year. In Missouri, this period of stress occurs in late winter. If the food, cover, and water features of a particular habitat area are capable of supporting only five animals through the winter, in early spring there will not be 10 or 15 animals, or even six; only five will survive. Furbearer harvests replace the mortality which would normally occur from starvation, disease, predation, exposure, and other causes. Regulated modern hunting and trapping seasons, unlike harvests of a century ago, do not jeopardize the survival of our furbearing species. They are a justified and sensible use of an important product of the Missouri outdoors. They use the annual surplus produced by productive furbearer populations.

Recreation and Economics

Trapping provides recreation and income for approximately 10,000 individuals in Missouri alone. Each year trappers seek out Missouri woods and water to participate in one of the oldest sports known to man. They generally go out in December when the fur is at its prime, but before the onset of severe winter weather. At this time of year a trapper usually is alone in the field since not many people venture out in such inclement weather.

Few outdoor skills demand as much from their participants as trapping. An understanding of animal

habits and habitat relationships, the ability to identify and successfully interpret animal signs, many hours of preparation and scouting, and long periods afield during harsh winter weather are a few examples of the challenges confronting the modern trapper. Yet the trapper's rewards of enjoyment and adventure are often unmatched. The closeness of the trapper's experiences to the realities of nature give him an outlook and an outdoor perspective that few sports can provide. The trapper must understand the animals he pursues and this understanding brings with it a respect that all of us, and especially all sportsmen, should possess.

Few people depend solely on income from trapping. Trapping, however, does contribute a great deal to Missouri's economy. In years past people depended upon trapping to provide food and clothing. The modern trapper is a striking contrast from trappers of the 1800s. Today most people trap in their spare time and depend on other incomes for their livelihoods. Most enjoy trapping as a hobby, although changing fur prices have a profound influence on trapping enthusiasm and participation. Missouri annually produces between 5 and 10 million dollars in raw furs, which puts it among the top raw fur-producing states in the country.

Missouri ranks among the top raw fur-producing states in the country.

Each species' fur varies in value from one year to the next, depending on fashion demands and the supply of furs available. Since 1973, fashion demands for long-haired furs have risen substantially. As a result, bobcats, foxes, coyotes, and raccoons have been more valuable than short-haired furs such as beaver and muskrat. Raccoons, because of their abundance and relative value, are Missouri's most important furbearer. In recent years raccoons have accounted for over 50 percent of all furs sold and over 75 percent of the state's total fur harvest value.

Wildlife Management

Trapping is more than an enjoyable and profitable outdoor activity. Regulated trapping can be an effective means to attain desired furbearer population levels. Annual harvest regulations are established by balancing current fur market demands and harvest pressures with the status of furbearer population. If harvest pressures are excessive or if population levels become depressed, season restrictions are adopted to prevent possible overharvests. As an example, a long-term natural decline of Missouri's red fox population, coupled with escalating demand for fox furs, resulted in the complete suspension of red fox harvest from 1977 to 1979. On the other hand, regulations were liberalized in 1978 to encourage increased harvests of Missouri's growing and occasionally troublesome beaver population.

Trapping is an important and commonly used wildlife research tool. Research provides information that directly benefits furbearer management programs. Using live- or foot-hold traps, researchers can capture animals alive, then

obtain biological information or tag and release the animals for later recapture either by the researchers or by hunters and trappers. Capture/recapture techniques enable biologists to estimate populations in specific areas or study animal movements and dispersal.

Radio-transmitting collars can be attached to captured animals. A recent study of bobcats in the Missouri Ozarks used foot-hold traps to capture bobcats. Radio collars were attached to each animal. Their movements and behavior were then monitored to provide information on bobcat densities, social structure, movements, and habitat needs. Such information is vital to the conservation and management of the species. Foot-hold traps are often the only effective way to capture large predators.

Missouri's currently flourishing beaver population resulted from the relocation of damage-causing animals to unoccupied suitable habitats. Although beaver live-trapping equipment is specialized, basic trapping techniques made this successful restoration effort possible. Conventional trapping techniques have been used in other parts of the country to re-establish furbearer populations.

The animals taken by trappers also provide biological information of importance to furbearer management. Long-term studies of the sex and age compositions of muskrat, mink, and raccoon harvests in Missouri have provided data essential to the understanding of population and harvest system functioning. The size of the furbearer harvest itself provides an important clue to the welfare of populations when harvests are examined in relation to prevailing fur market, population, harvest pressure, and weather patterns.

Animal Damage Control

In Missouri, trapping is a major tool used in the selective control of predators that attack livestock or furbearers that damage crops and property. Examples of losses that can be controlled in this manner are raccoons damaging corn fields, rodents eating stored grains, beavers causing flood problems, muskrats draining ponds, and coyotes and foxes killing poultry and livestock.

The Department of Conservation, through its wildlife damage control programs, provides trapping instruction to landowners with problems.

Wildlife Damage Control Agents in Missouri helped a farmer with his feeder pig operation after coyotes had killed 60 pigs in a period of approximately 50 days. Through the wildlife damage control program, trappers taught the farmer how to hunt for the den, remove the pups (which were the indirect cause of the damage), and then capture the offending adult animals. The damage was stopped and the farmer's animals were saved.

Only a few wild animals create wildlife problems; most benefit the environment. While some predators may cause damage or kill livestock, most are beneficial and help control nuisance rodents. Some beaver may flood croplands,

pastures, or road culverts, but others preserve precious water during summer droughts and create habitat for other wildlife. Wildlife damage control through selective trapping allows Missourians to deal with problem animals and yet enjoy the benefits of wildlife diversity.

Trapping Regulations

Modern furbearer harvests differ greatly from the unregulated fur trade of a century ago. Within 100 years after the establishment of Pierre Laclede's trading post at St. Louis, it became apparent that the wildlife populations of the frontier were not limitless. They could be overharvested and overharvest, when combined with habitat loss or an inability of certain animals to live with man, dangerously reduced some species such as the beaver.

Today wildlife scientists and conservationists continue to recognize that our wildlife resources are not inexhaustible, but they are renewable. The protection furbearers and other animals receive from modern regulations ensures continued enjoyment and use of these populations in the future.

Trapping regulations are determined by the Missouri Department of Conservation and published each year in the "Wildlife Code of Missouri." A permit is required to trap, possess, and transport furbearing animals in Missouri. The types of traps that are acceptable are specified in the wildlife code. Specific use of some traps also is included. Regulations require that trappers check their traps daily. Trapping seasons are determined each year and publicized by the Department of Conservation.

Specific regulations will not be discussed here because they may change from year to year. Conservation agents can answer questions about trapping and current regulations.

Trapping regulations are published in the "Wildlife Code of Missouri" which is available from the Department of Conservation. Check with your local Conservation Agent for any current changes in regulations.

Ethics

As with other outdoor sports, the actions and behavior of each individual trapper reflect directly on all participants. Trapping will remain an important and accepted activity in Missouri's outdoors only if trappers accept certain obligations and behave ethically. Trapping demands responsible behavior. Trappers have obligations not only to themselves, but to the landowners who grant them access, to other sportsmen, to wildlife populations, and to the individual animals they catch. The trapper's acceptance or shirking of these responsibilities reflects not only on him, but on all trapping enthusiasts.

Landowner Permission

Permission to trap must always be obtained from landowners. The landowner may have specific wildlife damage problems for which the trapper's skill can be of value. Certain areas may be off limits. Acting respectfully will contribute greatly to the trapper's image and potential success.

Selective Trapping

Traps are criticized sometimes as being non-selective because animals other than those being sought may be caught. When traps are used improperly, this complaint may be justified. When used properly, however, traps can be quite selective. It is the trapper's responsibility to make sets which are selective for the target species. A few well-constructed and located sets are more effective than twice as many sloppy, ill-placed sets.

Trappers need to recognize that other sportsmen, often with dogs, may be using the landowner's property and that wandering pets recognize no property boundaries. If hunting dogs or pets are caught, it is the trapper's obligation to release them. The ability to release animals with little more than a sore foot is a major, but often overlooked, positive feature of foot-hold traps.

Checking Traps

Trappers are responsible for the animals they catch. Animals must be trapped in the most humane way possible and dispatched promptly. Missouri regulations require that traps be attended daily. Harsh weather or conflicting obligations do not justify shirking this responsibility. Traps should be checked each morning.

Furbearer regulations are designed to protect and insure continued use and enjoyment of furbearer populations. Trappers should know and adhere to these regulations.

Code of Ethics

Responsible, concerned, ethical trappers adhere to the following code of ethics:

1. Obtain the landowner's permission before trapping on his land.
2. Avoid setting traps in areas where domestic animals may be caught.
3. Set traps to capture the target animal in the most humane way possible.
4. Check traps regularly and preferably in the early morning.
5. Identify and record trap locations carefully and accurately.
6. Dispose of animal carcasses properly so as not to offend others.
7. Make an effort to trap only the surplus animals from each habitat, leaving an adequate breeding stock.
8. Promptly report the presence of diseased animals to wildlife authorities.
9. Assist farmers and other landowners who are having damage problems with wildlife.
10. Support the training of new trappers and the strict enforcement of trapping regulations. Obtain all required licenses, tags, and permits from the Missouri Department of Conservation before setting traps.

Furbearers of Missouri

*Editor's Note: Drawings and information for this section have been taken from **The Wild Mammals of Missouri** book by Charles W. and Elizabeth R. Schwartz. This famous husband and wife team have devoted their lives to studying, photographing, drawing, and writing about wildlife. Both are biologists and staff specialists for the Missouri Department of Conservation. Their book on the mammals of Missouri is an excellent source for learning about Missouri furbearers before going out to trap them. A new edition of the book is now available.*

In addition to the furbearers trapped in Missouri, it is also legal to trap rabbits and groundhogs, although rabbits cannot be sold.



Badger

The badger is a medium-sized, heavy-bodied mammal that ranges in length from 26 to 35 inches (660 to 889 millimeters) and in weight from 13 to 30 pounds (5.9 to 13.6 kilograms). It has a broad head, thick neck, short legs, and a short, bushy tail. There are five toes with prominent claws on each foot, the claws on the front feet being very long and exceeding 1 inch in length. Its fur is gray with a slight yellowish cast. The badger occurs sparsely throughout much of the state, but is most common in the prairie region of northern and western Missouri.

Badgers prefer open country and live in the prairies and plains. Their homes are shallow burrows which they dig. They are excellent diggers with their heavy bodies, powerful muscles, and strong front feet and long claws. Securing their food requires that they dig faster than the ground squirrels, rabbits, and rodents they are chasing.

Mating takes place in August or September with a single annual litter born the next March or early April. A litter consists of from one to seven, with two or three most common.

Men, dogs, and coyotes are predators of badgers. Badger fur is used to trim coats.



6 inches

152 mm

Beaver

The beaver is the largest North American rodent, an adult reaching 4½ feet (1,371 millimeters) in length and weighing up to 90 pounds (40.8 kilograms). It is easily recognized by its large size, webbed hind feet, and large, horizontally flattened tail. A former program in Missouri of trapping beavers and releasing them in desirable localities has resulted in beavers being re-established throughout the state.

Beavers may be found in and along streams, rivers, marshes, and small lakes. In running water, they excavate a den in a high bank; but in quiet water they construct a lodge out of tree limbs and other debris. Beavers are well known for their engineering skills and especially for building dams.

Beavers are usually nocturnal. They eat the bark of tender twigs and the new growth between the outer bark and the wood of branches and trunk. In the summertime, various water plants, small land plants, shrubs, and corn are supplements to their diet.

The breeding season for beavers starts in January or February with a single annual litter born in April, May, or June. A litter consists of one to eight, but mostly three to four, young.

Man is the beaver's most important predator. Beaver pelts have been important in fur trading for years. The search for beaver pelts was one of the inducements to the exploration and settlement of this country. While beavers do cause some damage, their dam-building practices often benefit both the land and wildlife.

5 inches 127 mm



Bobcat

The bobcat is a medium-sized member of the Cat Family, but is one of the largest wild mammals in Missouri, ranging in weight from 10 to 40 pounds (4.5 to 18.1 kilograms). Its fur is yellowish to reddish-brown and streaked and spotted with black. Bobcats can be found anywhere in Missouri but are most common in the Ozark Plateau Region of south Missouri.

Bobcats live along the edge of heavy forest cover. Their rest shelter is a thicket, hollow tree, or a recess in a rocky cliff. Bobcats are curious and investigate many objects as they travel, which accounts for their zig-zag trails. They can swim and readily cross streams and small rivers. They are good climbers and take to trees for safety or rest.

Bobcats are active during the daytime and at night, but during the day they seldom venture far from heavy cover. They depend more on their eyesight and hearing than on their sense of smell to locate prey. They hunt rabbits, other small mammals, and various birds. They gorge themselves when food is plentiful, then may go several days without eating.

Breeding begins in December and may extend into June with usually a peak in March. Litters of usually two or three young are born mostly from mid-May to mid-June.

The hide of bobcats makes strong leather, but the fur is brittle and wears poorly. Bobcat fur in recent years has been valuable because of fashion trends.



Coyote

The coyote resembles a dog in appearance and is about the size of a small German Shepherd, weighing 18 to 30 pounds (8.1 to 13.6 kilograms). It can be easily distinguished from a red or gray fox by its larger size, light gray to dull yellow fur that is tipped with black, shorter tail, and round pupil of the eye. It is difficult to distinguish it from a red wolf. Coyotes occur statewide but are much more common in the prairie regions of northern and western Missouri.

Coyotes live in brushy country, along the edge of timber, and in open farmlands. During the breeding season they dig dens; otherwise they prefer to sleep on the ground in a concealed spot. Dens are usually located in unused fields and are often close to timber.

Coyotes are capable of running at a fast pace for short distances and are good swimmers. They seem to enjoy outwitting other animals. They like semi-open country and prefer to travel on ridges or old trails.

The height of the breeding season for coyotes is late February or early March. The young are born in late April or May and there are usually five to seven in a litter.

Coyotes are mostly nocturnal. They hunt rabbits and mice, but are also scavengers of both wild and domestic dead animals. Man is the most important predator. Coyotes are trapped for their fur and to protect livestock and poultry.



Red Fox

The red fox is dog-like in appearance with reddish-yellow coloring, a whitish belly, black legs and feet, and a white tip on its tail. It weighs 8 to 15 pounds (3.6 to 6.8 kilograms). The red fox lives throughout Missouri, although it is most common north of the Missouri River.

Red foxes prefer the borders of wooded areas and adjacent open lands. They have no special home most of the year but sleep on the ground. During breeding season, however, a den is used for the young, and there may be as many as four or five trails leading to the den.

Red foxes are chiefly nocturnal, but may come out in late morning or early evening. Their diet consists mainly of animal matter comprised mostly of rabbits and mice.

In Missouri mating generally occurs in January or February. The single annual litter is born usually in March or April and consists of 1 to 10 young with the usual number between 4 and 6.

Predators of red foxes are man and his dogs. Foxes are trapped for their fur which is used for trimming, scarfs, coats, and jackets.



Gray Fox

The gray fox is somewhat similar to the red fox in build, but is slightly smaller, grayish in color, and has a black-tipped tail. It weighs 5 to 14 pounds (2.2 to 6.3 kilograms).

Gray foxes live in wooded areas and fairly open brushland. They build dens in hollow logs, trees, rock piles, or in the ground. In contrast to red foxes, gray foxes more readily climb trees to take refuge from dogs or to sun themselves. They are secretive and shy, but fierce fighters when necessary. They are not, however, as cunning as red foxes and are easier to trap.

The peak of mating occurs in February or the first week of March. The single annual litter is usually born sometime from March to mid-May. There are from 1 to 10 young in a litter with 3 to 5 being the most common.

Gray foxes eat mostly rabbits and mice. They take far less livestock and poultry than red foxes. They have few predators except men, dogs, and possibly coyotes. Their fur is used for collars and trimming coats.



Mink

The mink resembles a weasel, but is larger and not as slender. Minks are $16\frac{1}{2}$ to $27\frac{1}{4}$ inches (419 to 629 millimeters) long and weigh $1\frac{1}{4}$ to $3\frac{1}{4}$ pounds (567 to 1,474 grams). Males are larger. Their fur is brown.

Minks are distributed throughout Missouri but at densities which are naturally low.

Minks always live near permanent water. They make their homes under the roots of trees, in cavities in banks, under logs, in hollow trees, or in muskrat burrows. They are aggressive animals and good fighters.

Minks are chiefly nocturnal and are active all year. They are well adapted to life both on land and in water. They rely heavily on their sense of smell to locate prey because their eyesight is not acute. They prey on mice, rabbits, fish, and frogs.

The breeding season begins in late February and matings occur until early April. The single annual litter is born around the first of May. An average litter is four or five.

Predators of minks are men, dogs, owls, foxes, coyotes, and bobcats. Their fur is durable and highly valued. Although minks occasionally take chickens, they generally are not destructive.



Muskrat

The muskrat is a medium-sized rodent with a stocky body, short legs, and a scaly tail that is flattened vertically. It weighs 1½ to 4 pounds (.67 to 1.8 kilograms) and is for the most part dark blackish-brown in color. Although it is one of the most abundant furbearing mammals in Missouri, it is not as numerous here as in other parts of its range.

Muskrats prefer still or slow-running water with vegetation in the water or along the shore. In Missouri they live in marshes, sloughs, streams, rivers, ponds, and lakes. They usually dig their homes in a bank or build them out of vegetation in the water. Muskrats also dig canals as pathways and pile up debris to form a platform for resting and feeding.

Muskrats are mostly nocturnal, but in late spring and early summer they may come out in the daytime. Muskrats are chiefly vegetarian, but they occasionally will eat fish, reptiles, young birds, and dead muskrats.

In Missouri the breeding season begins in late winter and extends until the middle of September. From one to five litters may be produced annually, although two or three are most common. Most young are born in the spring and most litters have four to seven young.

The main predators of muskrats are minks, raccoons, and men. Muskrat pelts are one of the most common items of the American fur market, and many are used in the manufacture of women's coats.



Opossum

The opossum is a medium-sized animal with long, coarse fur and a long, grasping tail covered with scales and scant hairs. It weighs 4 to 15 pounds (1.8 to 6.75 kilograms) and is grayish-white with a pink nose. Opossums are found throughout Missouri, but are least abundant in the northwestern and southeastern parts of the state.

Opossums live mainly in wooded areas near streams. Their home is any place that is dry, sheltered, and safe. They are seldom seen because they are shy, secretive, and nocturnal. Opossums are not aggressive and often climb trees to escape danger. Their best defense is "playing dead."

Opossums eat primarily insects, but are also scavengers eating various dead animals. In fall they consume large quantities of fruits, such as grapes and persimmons.

The main breeding period occurs during the first three weeks of February with young being born toward the end of the month. Second litters are born toward the end of May or first of June. The average number of young in Missouri is 9, with extremes from 5 to 13.

Opossums are preyed on by men, dogs, foxes, coyotes, bobcats, and great-horned owls. They are a common commercial furbearer in Missouri.



Raccoon

The raccoon is a medium-sized mammal that is easily identified by the black "mask" over its eyes and its ringed tail. Raccoons weigh 6¾ to 25 pounds (3.0 to 11.3 kilograms) with males being larger. Raccoons occur throughout Missouri, but they are most common in the northern and southwestern portions of the state.

Raccoons prefer hardwood timber, usually near areas of water such as ponds, creeks, or lakes. Their home is usually a den in a hollow tree, and they may have several dens. They are good climbers and also swim well. If cornered they will fight, but they prefer to escape or hide.

Raccoons are nocturnal, prowling from dusk to dawn. They eat wild fruit, grasses, corn, and nuts. They also like such animal foods as fish, clams, many insects, frogs, snakes, turtles, birds, mice, squirrels, rabbits, and muskrats.

Most breeding occurs in February, but some may take place later in the spring. There is usually only one litter annually with an average of three to four young and extremes of one to seven. Most litters are born in April or early May.

Man and his dogs are the main predators of raccoons. Their fur is valuable and used for coats, collars, muffs, and trimmings. Young raccoons are also good to eat. Raccoons are one of Missouri's most important furbearers.



Eastern Spotted Skunk

The eastern spotted skunk's overall color is black with conspicuous white stripes and spots. A white spot occurs on the forehead and in front of each ear. Four white stripes along the neck, back, and sides extend from the head to about the middle of the body. Its tail is usually all black. Spotted skunks weigh from $\frac{3}{4}$ to $2\frac{3}{4}$ pounds (340 to 1,247 grams). They occur statewide, but are rare.

Open prairies, brushy areas, and cultivated land are favorite habitat for spotted skunks. Their dens are located anywhere that is sheltered and protected. To avoid enemies they climb trees or fence posts.

Eastern spotted skunks eat predominately animal foods, but also like plants. Insects are a favorite food.

Eastern spotted skunks mate in late winter and young are born from April to July. Possibly a second litter is produced in late summer. A litter usually contains five young, with extremes of two and nine.

Skunks are not often preyed upon because of their ability to retaliate with their powerful scent. The scent of the eastern spotted skunk is stronger and more disagreeable than that of the striped skunk. Skunks have been preyed upon, however, by great-horned owls, bobcats, coyotes, dogs, badgers, foxes, and cats. They are trapped for their fur which is used for jackets and trimming coats.



Striped Skunk

The striped skunk is a medium-sized mammal with a black body and a thin, white stripe down the center of its face. It has a broad, white stripe beginning on the back of its head, continuing onto the nape, forking on the shoulders, and extending toward and sometimes onto the tail. Striped skunks weigh $3\frac{1}{2}$ to 10 pounds (1.5 to 4.5 kilograms).

Striped skunks occur throughout the state. They prefer forest borders, brushy field corners, fence rows, and open grassy fields broken by wooded ravines and rocky outcrops, wherever permanent water is nearby. They find or build dens in the ground or in stumps.

Striped skunks seldom climb trees. They can swim but usually avoid deep water. Since they are chiefly nocturnal, they use their senses of smell and hearing more than sight to locate their prey. They eat both plant and animal foods. Insects are a preferred food in spring and summer. Mice, rats, and small rabbits are a large part of their diet.

Breeding begins late in February and the young are born the first of May or in early June. Striped skunks usually have only one litter annually. A litter commonly consists of 4 to 6 young, but may have from 2 to 16.

When great-horned owls, coyotes, badgers, foxes, and bobcats are pressed by starvation, they may prey on young skunks. Adult male skunks eat the young if the female leaves them unguarded in the nest. Striped skunk fur is thick and glossy and is used for trimming, scarfs, muffs, jackets, and coats. Skunk meat untainted with musk is tender and good eating.



Editor's Note: The river otter is an endangered species and cannot be legally trapped in Missouri. It is included here only because when it was abundant it was trapped for its fur.

River Otter

The river otter is a large, long mammal that is mostly dark brown and sometimes nearly black when wet. Its total length is 35½ to 53 inches (901 to 1,346 millimeters) and it weighs 10 to 25 pounds (4.5 to 11.3 kilograms).

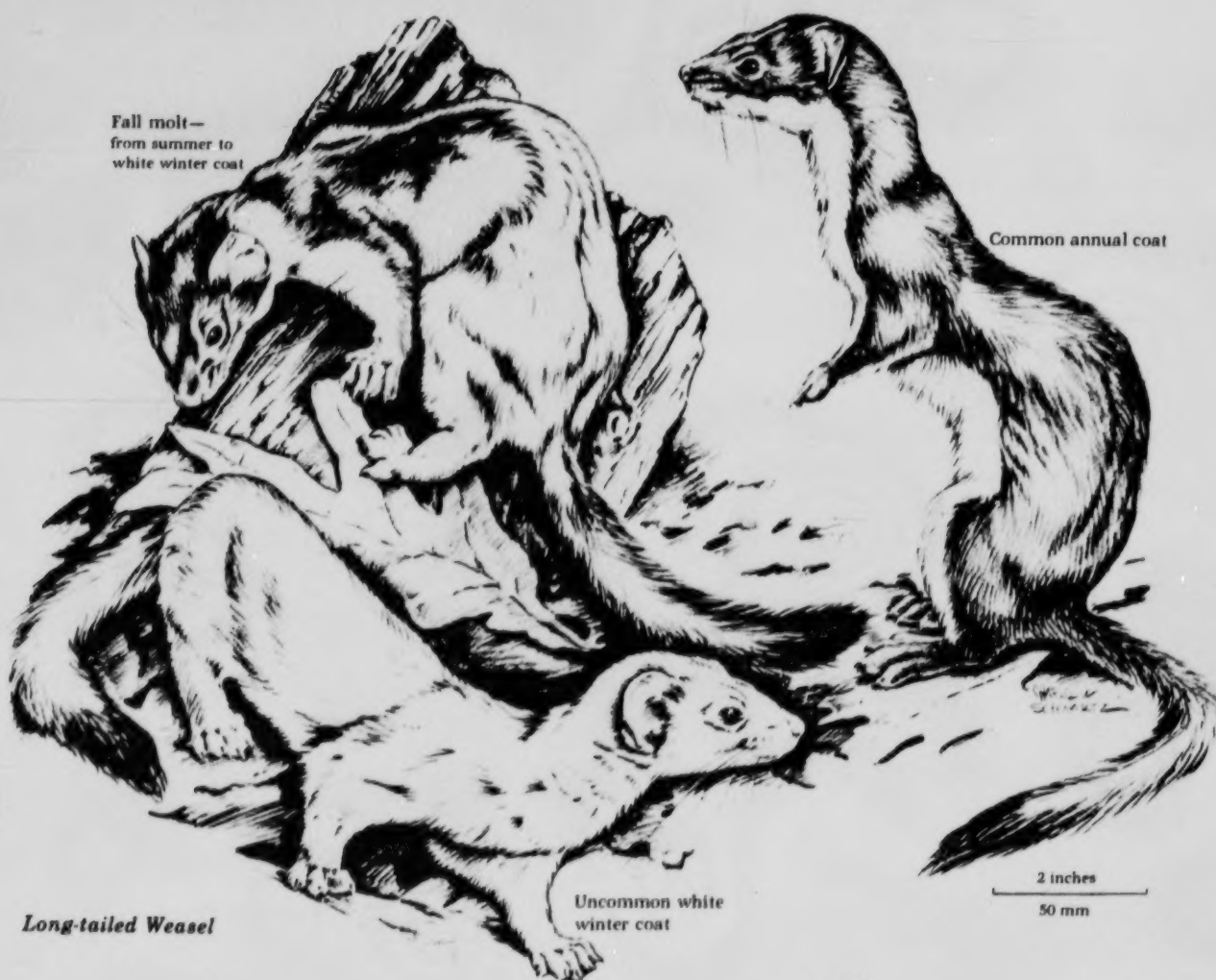
While otters live both on land and in the water, they are particularly suited for aquatic life. Their habitat is primarily streams, rivers, and lakes sometimes bordered with timber. Their homes are burrows in banks, under roots, ledges, or trees, or in thickets of vegetation. These usually are homes abandoned by other mammals.

Otters are powerful swimmers. They enjoy sliding down slopes and spreading out all four legs and sliding on their chest and belly into the water or a snow drift.

Fish and crayfish are favored foods of otters, but they also eat frogs, clams, snakes, turtles, muskrats, and earthworms.

Mating takes place in winter or early spring. The single litter is generally born the next year from January to May and usually contains from two to four young, with extremes of one and five. Adults remate immediately following birth of the young.

Otter fur is one of the most beautiful and durable of American furs, but because of their low numbers in Missouri, otters cannot be trapped.



Editor's Note: Two weasels, the long-tailed and the least, occur in Missouri, but both are rare. Only the long-tailed is trapped and the annual harvest is extremely small. The Department of Conservation, at the time of publication of this module, is considering a closed season on trapping weasels in the state.

Weasel

The long-tailed weasel is a slender, long-bodied mammal with short legs and a tail about half the length of the head and body. Its total length is between 11½ to 17½ inches (292 to 444 millimeters) and it weighs 2½ to 9½ ounces (70 to 269 grams). Males are larger. In summer weasels are mostly dark brown. In Missouri winters their fur is paler and sometimes even white like the coat of weasels in more northern regions.

Weasels live mainly in wooded areas, thickets, and brushy fence rows near drinking water. Their home is a shallow burrow which was usually abandoned by a mole,

ground squirrel, or mouse. They are both inquisitive and aggressive, sometimes attacking animals larger than themselves. They are agile, swift, and deliver a quick, fatal bite to their victims.

Weasels are active all year. They prefer their food alive and quivering, although occasionally they will store food. Often they kill more than they can eat.

Long-tailed weasels mate in July or August but the young are not born until the following April or May. The single annual litter contains from 1 to 12 young but mostly has between 5 and 8.

Because of their small size, weasels are victims of many predators, including foxes, coyotes, domestic cats, hawks, owls, snakes, and men. Their fur is soft and durable but not in great demand. They cause little economic loss and eat large numbers of mice and rats.

The least weasel is considerably smaller than the long-tailed, measuring 6 to 9 $\frac{3}{4}$ inches (152 to 247 millimeters) and weighing only 1 $\frac{1}{4}$ to 2 ounces (35 to 56 grams). It occurs in northernmost counties of the state.



Least Weasel

Tools of the Trade

Since his beginning, man has depended upon his skills as a hunter and trapper to survive. At one time such traps as deadfalls, pitfalls, and snares, no matter how crudely designed, were an important means of obtaining food and clothing. Then a trap was invented to capture its victim by the foot. The first such foot-hold trap was used in Europe to capture poachers, then later modified for animals. In 1823, Sewell Newhouse revolutionized trapping by manufacturing traps on a production-line basis.

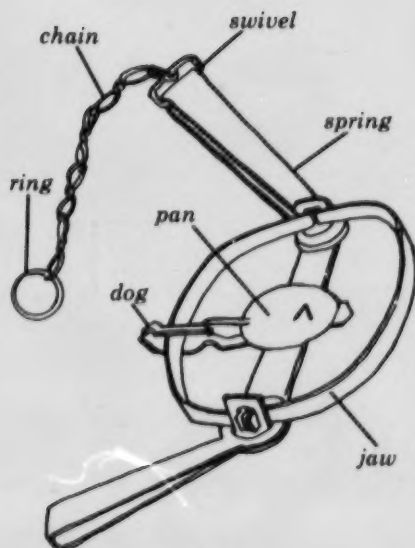
In addition to foot-hold traps, cage traps and body-grip traps were produced. Although there have been many attempts to replace the foot-hold trap, no other device has been invented that is as effective, versatile, and humane.

Traps are divided into three general categories—those that restrain or hold the animal, such as foot-hold traps; those that kill the trapped animal, such as the body-gripping Conibear trap; and those that enclose the animal, such as the cage trap.

Traps are constructed in different designs and sizes to hold varying sizes and species of furbearers, with a specific trap size and design for each furbearer. Each trap size is indicated by a number. Sizes may vary according to the manufacturer, but in most cases the numbering system is uniform. All #0 traps are small while #3 and #4 are much larger.

Editor's Note: The foot-hold trap is commonly referred to as a leg-hold trap, but the term foot-hold is more accurate and will be used throughout the module.

Types of Traps



Long Spring Foot-Hold Trap

FOOT-HOLD TRAPS

The trap most widely used is the foot-hold trap because it can be used for both short- and long-legged animals and animals can be released from it, usually without permanent damage.

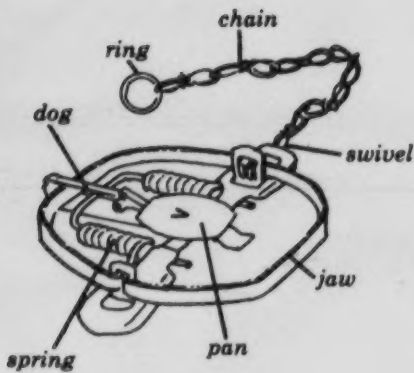
Today's foot-hold traps have no teeth. Toothed traps have been illegal for many years.

Operation of a foot-hold trap is simple. When the animal steps on a pan in the center of the trap, two smooth arms, called "jaws," are released and come together gripping the foot. These traps are popular because they are versatile. They come in several sizes and can be used both on land and in water. There are three basic types of foot-hold traps—long spring, coil spring, and underspring jump traps.

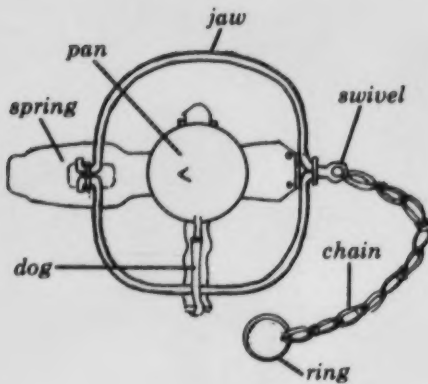
Long spring traps, when set in upland areas, can be set so they are more stable than coil spring traps. A wobbly trap may encourage the predator to dig out the trap because it thinks there may be a mouse underfoot and digs for it. A coil spring trap, however, is smaller and can be concealed more easily. Underspring also are smaller, but are not used as much with coil spring traps now available.

It's important to match the proper size of trap to the target animal, for an improper size may injure the animal.

Long spring, coil spring, and jump traps come in the following sizes and jaw spreads. (Tables furnished by Woodstream Corporation.)



Coil Spring Foot-Hold Trap



Underspring Jump Trap

LONG SPRING TRAPS

Size Reference	Jaw Spread	Animal to be trapped
#0 (single spring)	3½"	Gopher
#1 (single spring)	4"	Muskrat, mink
#11 (double spring)	4"	Mink
#1½ (single spring)	4¾"	Mink, skunk, opossum, raccoon, muskrat
#2 (double spring)	4¾"	Fox, raccoon, opossum
#3 (double spring)	5½"	Beaver, badger
#3 OS (double spring)	5½"	Coyote, fox, badger, beaver
#4 (double spring)	5 ⅞"	Beaver, coyote, wolf
#4 OS (double spring)	5 ⅞"	Coyote, wolf
#3N* (double spring)	5½"	Coyote, wolf

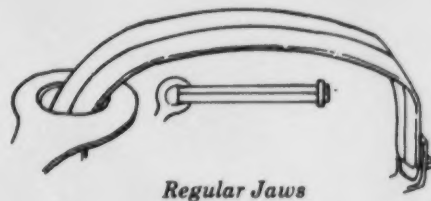
* Equipped with malleable jaws and welded, kinkless chain.

COIL SPRING TRAPS

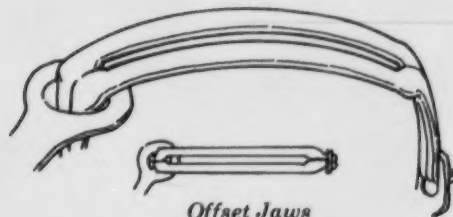
Size Reference	Jaw Spread	Animal to be trapped
#1*	3¾"	Mink, muskrat, skunk
#1½	4¾"	Fox, skunk, mink, raccoon
#2	5¾"	Fox, raccoon, skunk
#2 OS**	5¾"	Fox, raccoon
#3	6"	Bobcat, coyote, beaver
#3 OS**	6"	Coyote, bobcat

* Equipped with center-mounted chain and swivel.

** Equipped with offset jaws.



Regular Jaws



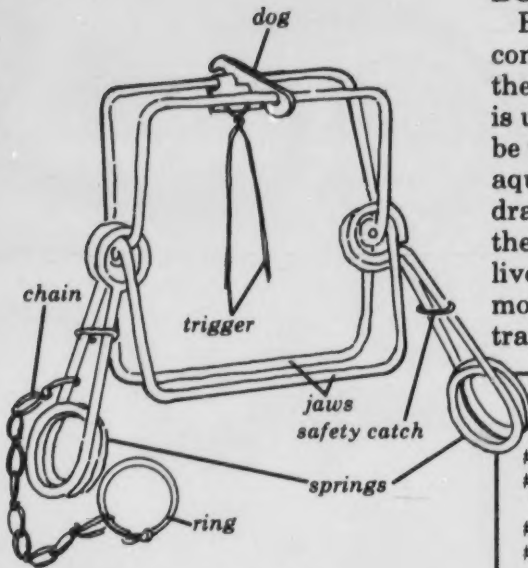
Offset Jaws

JUMP TRAPS

Size Reference	Jaw Spread	Animal to be trapped
#1	4½"	Muskrat, skunk, mink
#1½	5½"	Muskrat, skunk, mink
#3	6½"	Coyote, fox, beaver
#4	7¼"	Beaver, coyote, badger

BODY-GRIP TRAPS

Body-gripping traps are made of two metal frames connected by a spring that snaps the frame shut, grasping the animal's neck and back. An animal caught in this trap is usually killed quickly. The body-grip trap is designed to be used in water and works most effectively with semi-aquatic animals such as beavers and muskrats. The major drawback is that nontarget animals cannot be released, so the trap should not be set in upland areas where pets or livestock might be unintentionally captured and killed. The most common example of a body-grip trap is the Conibear trap made by the Woodstream Corporation.



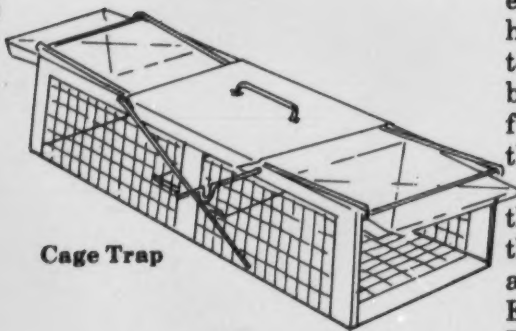
Body-Grip Trap

BODY-GRIP TRAPS

Size Reference	Jaw Spread	Animal to be trapped
#110-2 (single spring)	4½"	Muskrat, mink, skunk
#120-2 (double spring)	4½"	Mink, and animals of similar size
#220-2 (double spring)	7"	Raccoon, badger
#330-2 (double spring)	10"	Beaver

CAGE TRAPS

A cage, or live, trap is a rectangular wire enclosure with a triggered door that closes behind an animal after it enters the trap. Cage traps are effective for capturing less wary predators and pests. They are not recommended for coyotes or foxes because these animals do not readily enter an enclosure. Cage traps are used primarily in areas with a high density of dogs, cats, and people. They often are used to capture raccoons and skunks that have invaded homes, barns, or other private property. Cage traps can be used for fur trapping, but they are more expensive and cumbersome than a foot-hold or body-grip trap.



Cage Trap

Although there are many sizes and styles of cage traps, they all function in a similar manner. Bait is placed inside the trap to lure the animal into the trap. Once inside, the animal steps on a treadle pan which releases the door. Examples of cage traps are the Havahart, the P&S, and the Tender Trap.

HAVAHART TRAPS

Size (LxWxH in inches)	Animal to be trapped
24 x 7 x 7	Squirrels, muskrats, cottontail rabbits, gophers
30 x 7 x 7	Large squirrels, rabbits, skunks, mink
36 x 11 x 11	Raccoons, cats, opossums, jackrabbits
42 x 11 x 13	Large raccoons, bobcats
55 x 12 x 12	Foxes, raccoons, bobcats
70 x 30 x 30	Dogs, coyotes

Dimensions vary little for other brands of cage traps. Door and triggering devices vary in design, but they operate basically the same in each trap.

Other Equipment



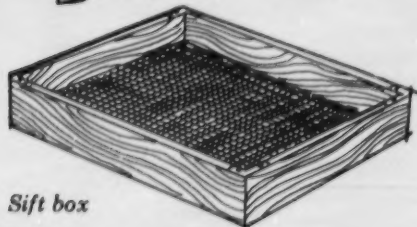
Trap basket



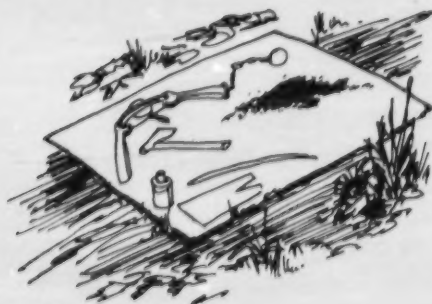
Hatchet



Cultivator



Sift box



Ground cloth

Before he is ready to set traps, a trapper must acquire some basic trapping tools for making trap sets. What tools work best is usually a matter of personal preference, the terrain, and the type of trapping to be done. Equipment varies somewhat for trapping on dry land as opposed to trapping in water.

UPLAND TRAPPING EQUIPMENT

Backpack or trap basket—One of these is handy to keep equipment in order, clean, and easily accessible. A trap basket is more useful if the trapline is long because it holds more traps and can also be used to carry animals. The type and size of pack to choose is a matter of personal preference. If walking a long line, a conventional trap basket attached to an aluminum backpack frame makes a useful and comfortable trapping backpack.

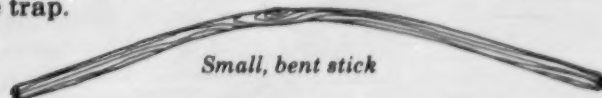
Digging tools—A straight-edged hatchet is a handy digging tool, as are a trapper's trowel and the common three-pronged cultivator used by gardeners. A hatchet can also be used for driving stakes.



Trapper's trowel

Sift box—This is an important tool used to sift fine dirt over traps. Small rocks or dirt clogs can foul a set by holding the jaws open once an animal has sprung the trap. In addition, the finer the dirt cover on the trap, the better it is concealed.

Small, bent stick—This is used to level the dirt over the trap. Too much dirt will put the animal's foot out of range of the trap jaws and too little dirt will allow wind or rain to expose the trap.



Small, bent stick

Setting tarp or ground cloth—When setting traps in upland areas, a trapper can use a tarp to kneel on when digging holes for trap placement. Dirt is placed on the tarp and any excess then carried away to keep the trap set neat and free of obstructions. A tarp also will keep the trapper dry and clean, but it is not used for concealing human scent.

Pliers—These have a variety of uses from cutting wire to adjusting traps.

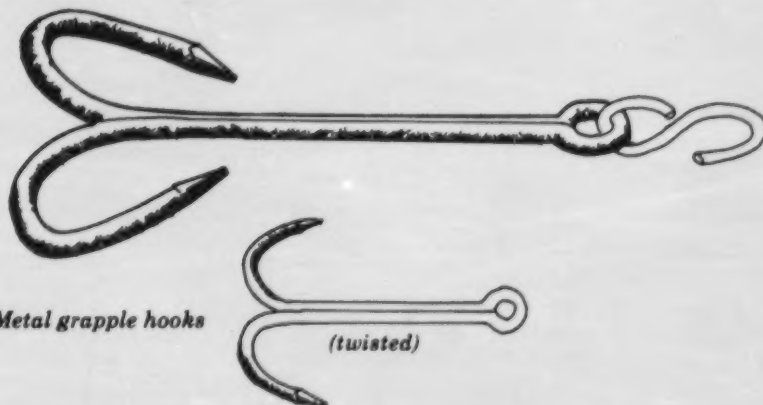
Metal stakes or drags—Soil conditions and terrain dictate to the experienced trapper whether a stake or drag should be used. Metal stakes are preferred to wooden because they are more durable. Using a 1/2-inch concrete reinforcing rod with a 5/8-inch nut welded on top makes an excellent stake. The length of the stake needed varies with the soil conditions. Loose soil or sand requires a longer stake than is needed for rocky, clay soil. Attaching a lap



Metal stakes or drags

link makes anchoring a trap quick and efficient. The lap link allows an animal to move around the stake without binding the chain. Staking traps has the advantage of making it easier to find an animal, but offers a greater chance of the animal escaping because the first effort it makes to escape the trap usually is its strongest effort. Stakes might fail where a drag would continue to hold the animal.

The best drag to use is a *metal grapple hook* that has two prongs for easy concealment. Hooks with three and four prongs are used but they require digging deeper to conceal them. Although green sprouts, fence posts, and rocks also can be used for drags, the grapple is by far the best. Using drags on traps creates the problem of having to locate an animal that has run away from the set, but this leaves the set location undisturbed and reusable. In addition, fewer animals escape because the further they drag the trap, the less they fight.



Metal grapple hooks

(twisted)

Pan covers—These are necessary when setting traps in the dirt to keep obstructions from under the pan, which could prevent it from falling. Pan covers are fitted to match the inside width of the trap jaws with enough left over to tuck underneath the jaws. Clean denim, wax paper, and sandwich bags can be used. It is important that pan covers are clean so animals don't dig at the set.



Pan cover

WETLAND TRAPPING EQUIPMENT

Trap basket—The conventional trap basket works best unless using a boat because all equipment must be carried at one time.

Small hand axe—A Hudson Bay style axe that is well sharpened is handy for cutting, sharpening, and driving wooden stakes.

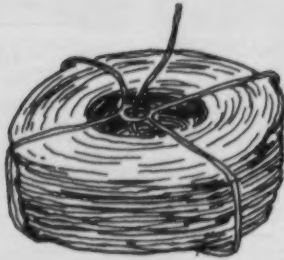
Wooden stakes—These are preferred to metal stakes because they are usually readily accessible along stream banks. They also are lighter than metal. Pre-cut, dried stakes are even more desirable because they are more convenient and less likely to become a beaver's dinner.

Drags—These are preferred by water trappers who work the rocky bottom streams.

Roll of wire and pliers—Pliers need to have a good cutting edge. It's important to never tighten wire on stakes, drags, or traps with the pliers, however, because the wire is more apt to break. Wire should be double wrapped and cinched tight by hand.

Shoulder gauntlets, hip boots, chest waders—These are essential to keep the wetland trapper warm and dry. Being wet and cold takes the fun out of the sport and can be dangerous.

Ice hoe—This tool is helpful when setting traps beneath the ice. While hatchets and axes can be used, ice hoes work better because they help prevent flying chips of ice from injuring eyes. Using a long-handled ice hoe keeps a trapper away from flying chips and out of the cold water.



Wire



Ice hoe

Shoulder gauntlet

Hip boots



Scents, Lures, Baits



Trapping without using scents, lures, and baits is like fishing without worms or other bait. Chances of catching many furbearers are greatly reduced.

While several lures, scents, and baits are sold commercially, the best are those derived from natural sources. Coyote urine is effective because coyotes act like dogs and follow the scent of another coyote's mark. (When one dog marks a car wheel, the next dog down the road will do the same.) Urine, therefore, is one of the best scents a trapper can use.

Gland scents are excellent lures for carnivores. These are made from various gland secretions of coyotes or foxes. Gland scents should be used sparingly; 2-4 drops per set is sufficient.

Food-based lures are extracts of honey, eggs, cheese, anise oil, and fish oil. These lures and baits such as chunks of meat taken from beaver, muskrat, and other carcasses may attract dogs and cats. Other baits include bird wings and rabbits. These may attract not only pets, but also hawks and owls. A good rule of thumb is not to use food baits.

It's recommended to stick with natural scents and lures—urine and gland lures for predators, gland lures from muskrats for muskrats, beaver castor for beaver.

Many beginning trappers want to make their own lures, which can be messy and unnecessary. There are several good and proven commercial lures available. It's a good idea to talk with an experienced trapper to find out what works best and then stick with those proven brands.

Care of Traps

Taking proper care of traps and trapping equipment is important in running a successful trapline. New traps are not ready for trapline use until they have been thoroughly checked. The following steps should ensure properly prepared traps for the season.

INSPECTING

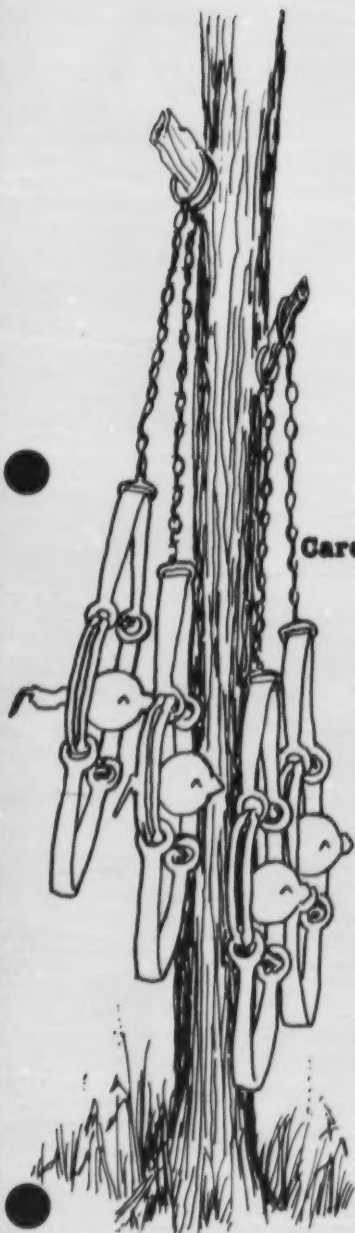
With the trap set, examine the jaws for sharp edges. Some jaws are factory filed to reduce cutting, others are not. Filing the inside edges of the jaws will increase the holding power of the trap and help eliminate injury to the furbearer's foot.

PRE-RUSTING

Pre-rust new traps by letting them soak 6-8 hours in a saltwater and vinegar solution that washes off the oil applied by the manufacturer. Hang the traps outside until they are completely covered with a light coat of rust.

DYEING

To dye traps, fill a large metal container with enough water to cover the traps. Be sure the container is clean.



Pre-rusted traps hanging to dry



Dyeing traps

Bring the water to a boil and add a commercial trap dye. Sumac tassels or walnut hulls also make excellent dyes. A five-gallon bucket filled with sumac tassels will dye several dozen traps.

Tie traps together with wire in groups of six for easy handling. Submerge the traps in the water, leaving enough wire hanging over the side of the tub to retrieve the traps. Boil them until they are an even black color, which should take about 30-45 minutes. Remove the traps and hang them to dry.

WAXING

Traps are waxed to prevent them from further rusting and to improve trap action. Conibear traps are **never** waxed because that would make them dangerous to set.

To wax traps, bring clean water to a boil in the metal container used for dyeing. Submerge traps. Melt trap wax purchased from a dealer and pour melted wax into the water. The wax will float on top of the water, which should be only slightly boiling. When traps are hot, pull them slowly out of the water, allowing the wax to coat the traps. Cold traps become coated with too much wax, so make sure that traps are hot. Hang them outside to dry, but away from strong odors such as smoke, car fumes, or animal pens. Traps should hang until dry before using or storing. Wax should be scraped away from the pan notch and trigger before traps are set.

The purpose of dyeing and waxing traps is to protect them from rust, and also to remove excessively strong odors that may be detected by mammals and would cause them to dig.

STORING

After traps have been used for the season, check each trap for worn swivels, chains, or other parts. Remove and replace any parts that are worn. Sort and clean traps, remove old wire, and hang them up until the next season. It's certainly frustrating to start a new season with tangled, dirty traps.

Identifying Tracks and Signs of the Furbearers of Missouri

Sign to a trapper is evidence left behind by an animal that indicates a specific animal has been present. It is also referred to as "spoor." Signs include tracks, droppings, hair, and disturbed ground or vegetation.

Upland Species

It's important to learn the habits and habitat of furbearers to know where to begin to look for tracks. Knowing where animals are apt to build dens and what they eat will help locate them. Track signs (drawn to actual size) for some of Missouri's upland furbearers are shown below:

Badger



Track pattern



Bobcat



Track pattern

Coyote



Track pattern

Gray Fox



Track pattern

Red Fox



Track pattern

Mink



Track pattern

Opossum



Raccoon



Skunk (Eastern Spotted and Striped)

Eastern Spotted Skunk track is only half the size of the Striped Skunk track (shown here).



Semi-Aquatic Species

Signs of semi-aquatic species, such as muskrat and beaver, are somewhat the same as those of upland species, but they are confined to a much smaller area. A greater variety of signs are available from these species also. Fallen trees, dams constructed of sticks and mud, and dens built on the banks of streams and ponds tell a trapper that there are beaver in the area. Large, webbed tracks in the mud show where beaver are leaving the water in search of food and building materials. Cuttings on vegetation, such as cattails, bulrushes, and other aquatic vegetation, disclose that a muskrat has been foraging in the area. Investigating further should turn up droppings on logs, underwater runways, den entrances, and tracks in the mud.

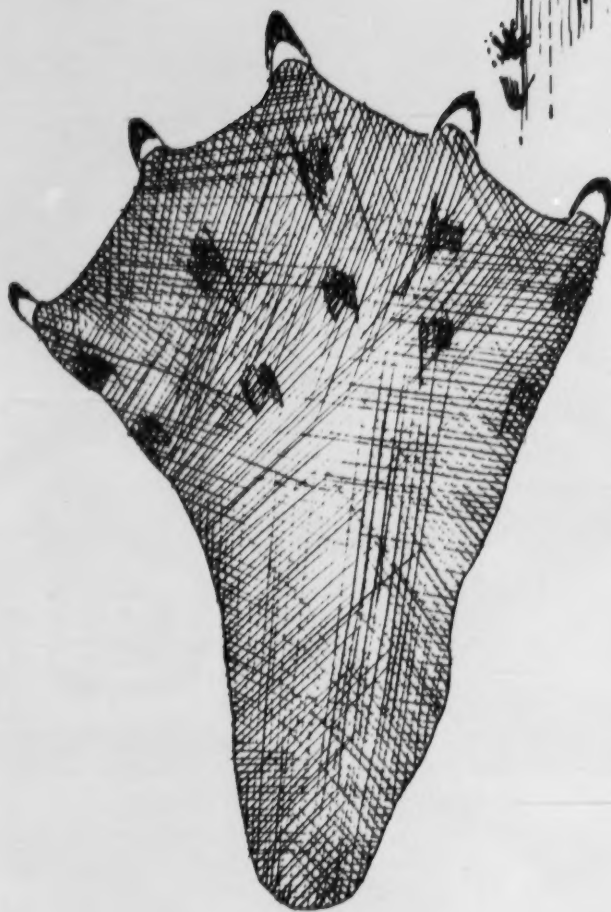
Muskrat



Beaver



*Track pattern with
marks of tail and
fur dragging*



How to Locate and Make Trap Sets

Trap sets should be located where furbearers are frequently traveling in an area. **Never** should a den or home be molested. Traplines often follow a stream, circle a pond or lake, or are set near such shelters as woods, fence rows, rock ledges, or old building ruins. Traps for coyotes should not be set too near brush, rocks, fences, or even tall weeds for coyotes will avoid places where they might feel crowded. Other furbearers, however, aren't as skittish about crowded conditions.

Choice of sets to use will depend on the territory and personal preferences of the trapper. Usually trap sets are made for a specific species.

Double Trap Scent Post Set

Furbearer: coyote, fox, bobcat

Trap: two #3N traps with a drag hook

This particular set is used by the Department of Conservation in the predator control program.

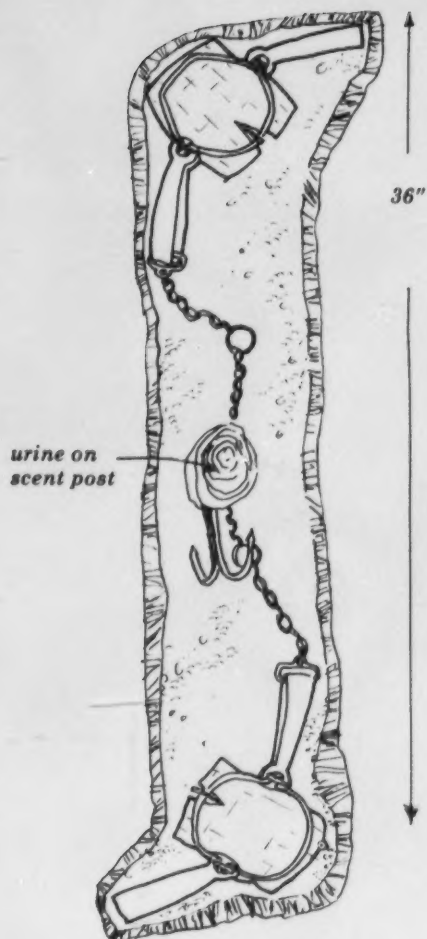


Double trap scent post set

How to set:

1. Dig a flat bottom trench (6 inches wide and 1½ inches deep) parallel to the animal's line of travel and preferably with the wind blowing longways with the set. The length of the trench will vary depending on the predator sought, its size and anatomy. For bobcats, dig a 30-inch trench; for foxes, a 26-inch trench; and for coyotes, a 36-inch trench.

2. Firmly place the drag hook in the center of the set.



Single Trap Scent Post Set

3. Position one trap in each end of the trench. The spring, with the chain attached, should be parallel to the side of the trench and the chain in the center of the trench.

4. Round out each end of the trench to snugly accommodate the jaws and then remove enough dirt to accommodate the springs. Be sure traps are solid because wobbly traps cause animals to dig.

5. Position a pan cover over the trap pan to keep dirt from rolling under the pan and interfering with its action.

6. Cover the traps thoroughly with dry, sifted dirt and level out the dirt. Chains and drag also should be completely covered.

7. Check the depth of dirt over the pans. If the trench was $1\frac{1}{2}$ inches deep, there should be $\frac{1}{8}$ - $\frac{1}{4}$ inch of dirt covering the pans.

8. Locate a scent post. This consists of a dry, porous material about 3-4 inches high and 6-8 inches wide, which may be a piece of wood, a tuft of grass with the root system attached, or a cow chip.

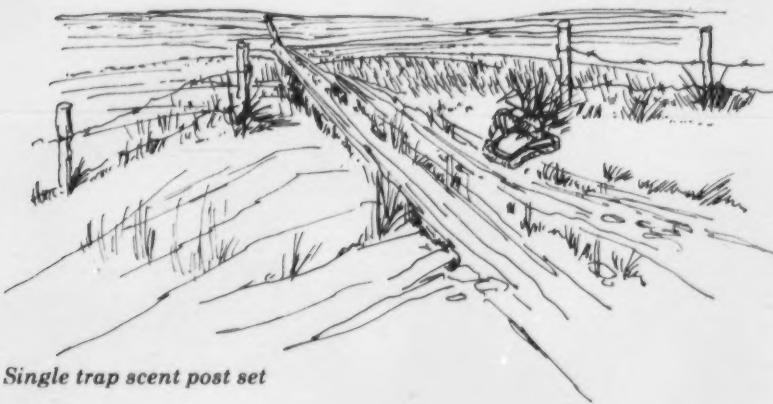
9. Place the scent post between the two traps and apply about one teaspoon of raw coyote urine to the post. Be careful not to get urine anywhere else on the set or in the immediate area.

10. Carry any excess dirt at least 30 yards from the set and scatter it.

Animals caught in a set using a drag hook generally will run downhill and towards cover. They can be followed by watching for signs of the dragging hook in the ground and surrounding vegetation. The loose dirt in the trap bed is usually scattered in the direction the animal ran.

Furbearer: coyote, fox, bobcat

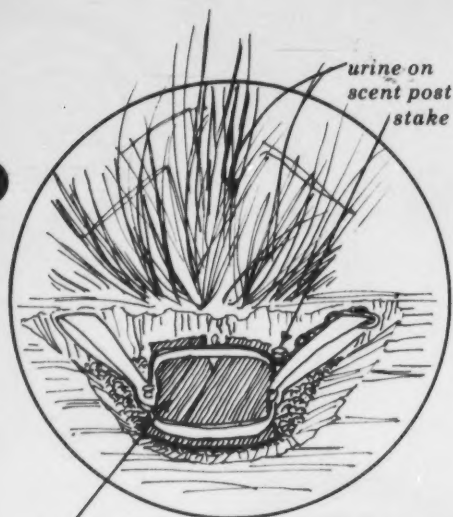
Trap: one #3 or #3 OS trap with stake



Single trap scent post set

How to set:

1. Dig a hole, referred to as a trap bed, that is slightly larger than the trap itself and $1\frac{1}{2}$ inches deep. The set should be located upwind from where predators are traveling.



trap patch

Dirt Hole Set

2. Drive a metal stake through the lap link until the stake is driven below ground level. (The stake should be driven directly behind the trap and the bottom of the trap bed.)
3. Position the pan cover.
4. Sift dirt over the trap.
5. Check the depth of the dirt over the pan. It should be the same as for the double trap scent post set.
6. Place the scent post 3-4 inches from the trap jaw directly behind the trap and away from the travel area.
7. Apply urine to the scent post.
8. Carry excess dirt at least 30 yards away and scatter it.

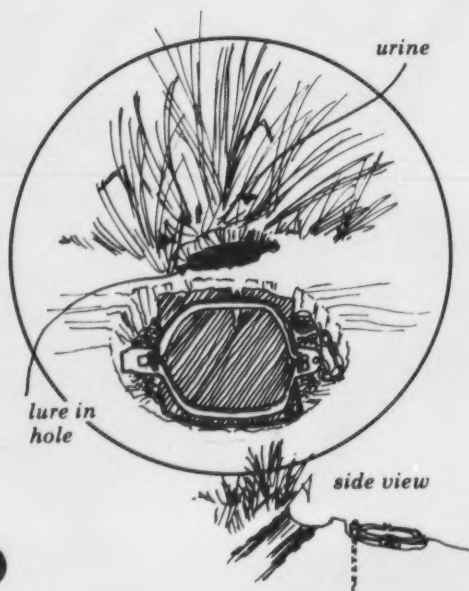
Furbearer: coyote, bobcat, fox

Trap: #3 or #3 OS with stake for coyote

#1½ or #2 with stake for fox and bobcat



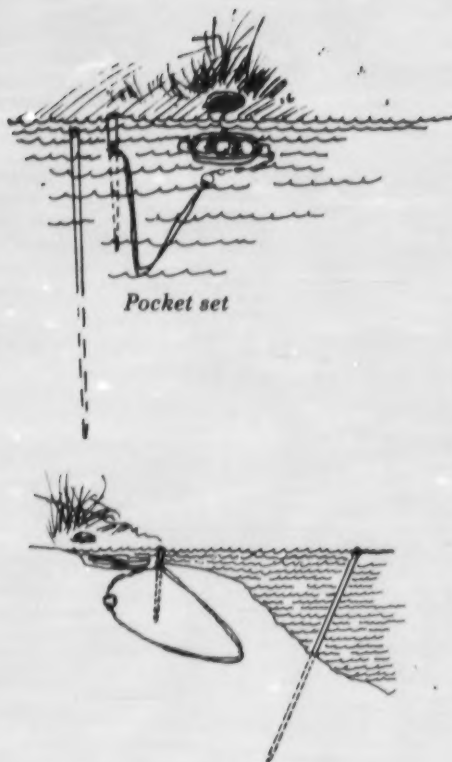
Dirt hole set



How to set:

1. Dig a trap bed slightly larger than the trap.
2. Firmly stake the trap as described for previous sets.
3. Dig a hole (2-3 inches in diameter, 6-8 inches deep) at a 45-degree angle directly behind the trap.
4. Position the pan cover.
5. Sift dry dirt over the trap but keep the hole behind the trap free of dirt.
6. Level the dirt over the trap.
7. Apply gland lure or food lure to a cotton ball and place in bottom of the hole.
8. Apply urine to the lip of the hole farthest away from the trap.
9. Carry away extra dirt and scatter it.

Pocket Set



Side view: Use 9" to 18" wooden stakes and position at an angle as shown.

Blind Set

Furbearer: raccoon, mink

Trap: #1½ or #2

How to set:

1. Locate area along a stream or pond where the bank is clear of brush and large rocks. A mud bank with coon or mink tracks is a good area.

2. Securely drive a wooden stake to the stream or pond bottom at the water's edge.

3. Drive a second stake at an angle into water at least one foot deep until the top of the stake is even with the water level.

4. Attach wire from a spool to the first stake by lapping the wire around the stake twice and cinching it by hand.

5. Run the wire spool 6-8 inches past the second stake and back again so the wire is doubled. Cut the wire.

6. Fasten the loose end of the wire through the trap ring and tighten it by hand.

7. Dig a hole (2-3 inches in diameter, 6-8 inches deep) above the water level.

8. Set trap and bed in front of the hole with 2 inches of water covering the trap. Be sure trap is firm.

9. Bait the hole with fish or lure.

When the furbearer is caught, it will try to escape by going up the bank. If the spot is chosen carefully, there will be nothing for the animal to hang onto which will drive it to the water. When the furbearer reaches the second stake the trap chain usually wraps around the stake and the animal drowns.

If this set is used in rocky streams where stakes cannot be driven, a drag should be substituted. The drag and 3 feet of extra chain should be placed in the water away from the trap.

Furbearer: raccoon, mink, muskrat, beaver

Traps: #1½ or #2 for raccoon, mink, muskrat

#4 for beaver (Trap should be used in 6-8 inches of water.)

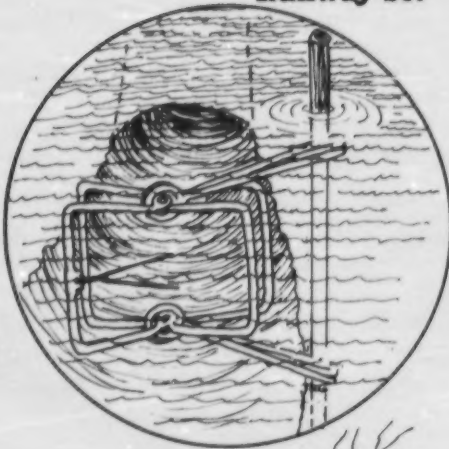


Use 9" to 18" wooden stakes and position same as for pocket set.

How to set:

1. Locate areas where furbearers are going into or leaving the water. Track signs should be evident.
2. For raccoons, minks, and muskrats, bed trap in 2 inches of water where the animals are leaving or entering the water.
3. Secure the traps by driving a wooden stake to the stream or pond bottom at the water's edge.
4. Drive a second stake at an angle into the water at least one foot deep until the top of the stake is even with the water level.
5. Attach wire from a spool to the first stake by lapping the wire around the stake twice and cinching it by hand.
6. Animals coming into or leaving the water must pass over the trap and will be caught doing so.

Runway Set



Runway set for muskrat

Furbearer: muskrat, beaver

Traps: #110 Conibear for muskrat

#330 Conibear for beaver

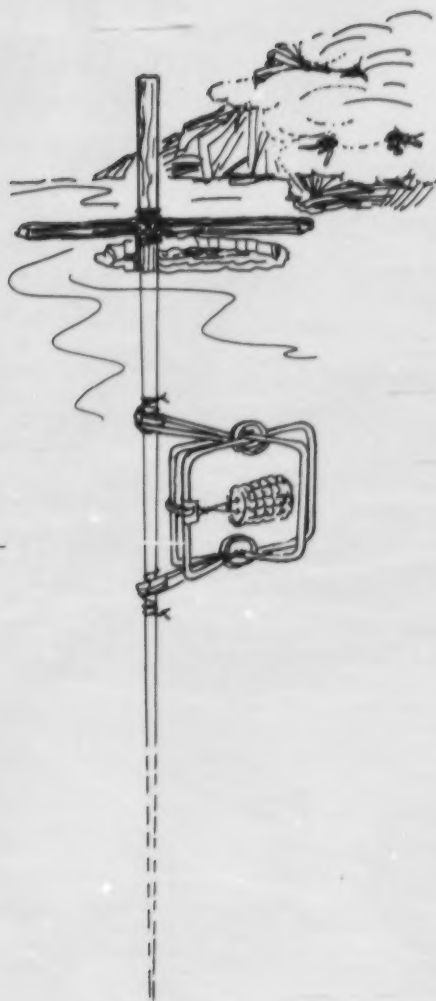
Runway set for beaver



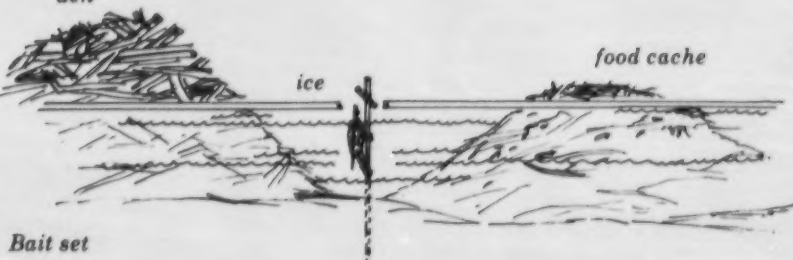
How to set:

1. Find runs (channel to den entrance) under water in an area muskrats or beavers are using.
2. Clear away any debris such as floating or submerged sticks or other vegetation that might foul the trap.
3. Using the appropriate size of Conibear trap, place the trap in the run so the furbearer must swim through it to enter or leave the den.
4. Secure the trap to a dry wooden stake. Beavers can easily cut green stakes.

Bait Set



Furbearer: beaver
Trap: #330 Conibear
den



How to set:

1. This set is especially effective for beaver that have been cutting field corn. When ice is too thick to locate runs, it's still possible to trap beaver by locating the food cache in front of or near their den.
2. Using an ice hoe, chop a hole in the ice that is large enough to pass the trap through the hole. The hole should be cut between the den and the food cache when possible.
3. Locate a long, dry pole that is almost as big around as the coil of the Conibear spring.
4. Set the trap and attach the safety.
5. Measure the water depth with the pole.
6. Run the pole through both springs of the trap. Secure it to the pole halfway down the water mark on the pole.
7. Use half a cob and stick the pith of the cob onto the trigger.
8. Remove the safety and set the trigger.
9. Lower the trap into the water, pushing it into the bottom.
10. Above the ice, wire another short pole perpendicular to the first pole to keep the trap in position.

Scent Set

Furbearer: muskrat
Traps: #1 or #1½



Position stakes same as for pocket set.

How to set:

1. Set trap in 2-3 inches of water where muskrat sign is evident.
2. Dip a stick or cotton swab into muskrat lure, then stick it into the bank behind the trap.
3. Securely drive a wooden stake to the stream or pond bottom at the water's edge.
4. Drive a second stake at an angle into the water at least one foot deep until the top of the stake is even with the water level.
5. Attach wire from a spool to the first stake by lapping the wire around the stake twice and cinching it by hand.

Mound Set

Furbearer: beaver

Trap: #4



Position stakes same as for pocket set.

Mound set

How to set:

1. Set trap in 6-8 inches of water where beaver signs are evident. Use two strands of wire.
2. Construct a mound of mud and leaves on the bank above the trap.
3. Apply about half a teaspoon of beaver lure to the mud mound.
4. Weight trap with a large rock or cement block placed in deep water or stake it as described in the scent set.

How to Humanely Handle and Kill Trapped Animals

It is a trapper's responsibility to kill a captured furbearer quickly and humanely. When possible, drowning sets should be used for such animals as beavers, minks, muskrats, and raccoons. The use of body-grip traps such as the Conibear is an effective and humane way to trap most semi-aquatic species. In Missouri, however, Conibear-type traps with a jaw spread greater than 5 inches cannot be used in any dry land sets. Therefore, animals trapped in upland areas should be shot with a .22 caliber rifle or pistol. If a non-target animal is caught, it can be released by using a homemade animal catcher. The animal is snared around the neck and kept at a distance while the trapper depresses the trap springs. Then the animal can be set free.

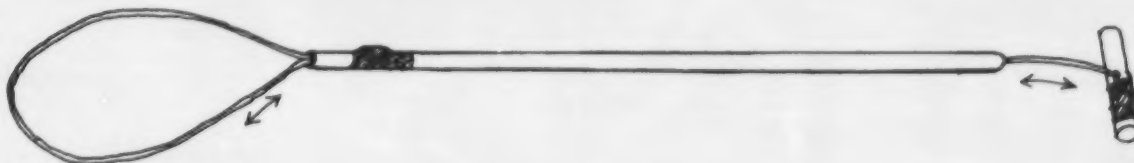
How to make an animal catcher

Materials:

5 feet of $\frac{1}{8}$ -1 inch conduit or pipe
9 feet of cable
2 hose clamps
electrical tape
dowel rod

Drill hole in dowel rod and insert cable. Cinch with hose clamp. Run cable through conduit and make loop. Clamp cable after making desired size of loop. Use electrical tape to cover clamps and end of cable.

Trappers also are responsible for using any furbearers they trap regardless of the fur value. Proper care of pelts not only increases pelt value but also allows maximum use of each pelt. Carcasses should be disposed of properly so they do not offend others. Several furbearers such as raccoons, beavers, and muskrats make tasty meals. Carcasses of these animals can be eaten, given away, sold or sent to rendering plants. Other carcasses should be buried.



Homemade animal catcher

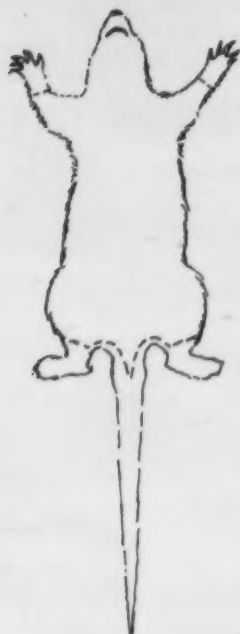
How to Properly Care for the Fur of Animals

To get full value for fur, proper handling is important. You need to know how to remove and prepare the pelt. Methods of skinning furbearers have become well standardized. These methods were developed to get the most out of the pelt and should be followed carefully.

Before skinning the animal, burs and dirt should be brushed and washed out and the fur dried.

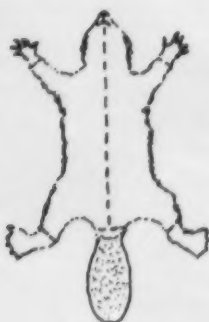
There are two standard methods of skinning, depending upon whether the pelt is to be stretched out flat or cased. Skins of badgers and beavers usually are cut down the belly and stretched out flat; all the rest are cased.

Skinning for the Cased Pelt



1. Cut around the hind foot at the edge of the fur; make a slit up the back of the leg to the base of the tail.
2. Carefully work the skin off around the legs.
3. Cut around the base of the tail of opossums and muskrats; tails of these animals are not skinned out. Skin out the tail of the others. This is done by making a short cut up on the under side of the tail, working the fingers around to pull the skin away from the sides and back of the tail and down along the back. Then work the bony part of the tail out of the fur. The use of two sharp-edged pieces of wood is very helpful. In skinning skunks, be careful not to cut into the scent bag at the base of the tail. Rip the skin around the bag, leaving a narrow rim around the outlet. It is safest to cut the scent bag loose from the carcass before going on with the skinning. Hold it by the rim of skin left in skinning while you cut it loose, being careful not to squeeze it.
4. Pull the skin down over the body and head, turning the pelt inside out. Use the knife at this point only when necessary. Pull the skin over the front legs, cutting it off above the foot.
5. The knife must be used carefully in taking the skin off the head to avoid cutting the pelt. Special care is needed around the ears and eyes. Remove the pelt to include the tip of the nose.

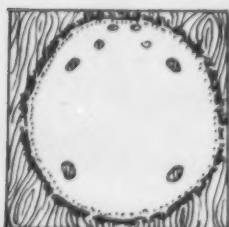
Skinning for the Open Pelt



This method is used in skinning beavers and badgers, but techniques vary for each of these. Check to see if your prospective buyer wants the badger skinned for open or cased pelts.

1. Cut off all four feet. Slit the skin in a straight line down the center of the belly from the tip of the lower jaw to the base of the tail. *Do not slit the skin on the legs.* Cut around the tail at the hairline.
2. With a sharp knife, skin the pelt off around the body and over the legs and head. Leave as much fat and flesh on the carcass as possible, without cutting the skin. Use extra care in cutting around eyes and ears and over the skull. Remember, every cut in the skin reduces the value of the fur.

Fleshing, Stretching, and Drying Pelts



Fleshing means removing all excess fat and flesh from a pelt, which prevents it from spoiling. A dull knife is recommended for scraping because there is less danger of cutting the hide. A smooth-edged hoe or a putty knife with the corners rounded off makes a good fleshing tool.

OPEN PELTS

Tack the pelt, flesh side up, to a smooth, flat surface such as a piece of plywood, stretching it as nearly round as possible. Begin scraping at the edges and work toward the center. If the pelt sags while scraping, restretch it before scraping any more. Sagging pelts are easily cut.

After scraping off all fat and flesh, restretch the pelt. The



Tanning Skins

best stretcher is a large, round hoop to which the pelt can be laced. If the fur is absolutely dry, it can be stretched flesh side out against a flat surface such as a piece of plywood. The lacing or tacks should be no more than $1\frac{1}{4}$ inches apart. Leave the pelt stretched until dry.

CASED PELTS

Cased pelts are stretched on commercial stretchers, or thin boards cut in simple tapering form. Fox, coyote, and bobcat pelts should be temporarily stretched with the flesh side out until partially dried, then removed from the stretcher and restretched with the fur side out until the pelt is dry. All other cased pelts are dried with the flesh side out.

The board or frame should hold the pelt smooth without actually stretching it so much that it will be made thin. It is impossible to stretch a medium-sized pelt so it will grade large. Stretched to that degree, it will actually be graded lower than if it had been properly stretched.

Pelts should never be salted or dried by heating. They should be hung in a cool, shaded place, away from mice and vermin, until dry. They may then be removed from the stretcher for sale.

Editor's Note: The following instructions for a home tanning technique were written by Thomas J. Kick and are reprinted from the Missouri Conservationist.

STEP 1

The first step is to remove all flesh and fat from the skin. This is a prerequisite to the actual tanning process and is time well spent. This should be done with a dull knife while the skin is fresh. (If you cannot work on the skin when it is fresh, freeze it until you are ready and then allow it to thaw. Pelts which have dried should be soaked in water until limp.) Then rub salt onto the flesh side and roll it up, flesh side in, allowing it to set for two or three days. When you unroll the skin, you will find that the salt has loosened fat and flesh that held fast the first time you scraped the skin.

STEP 2

When you have the skin free of all flesh and fat, it is time to degrease it. Use naphtha thinner and rub it well into the hair and onto the flesh side. Be sure to use naphtha outdoors and away from flame because it is highly flammable! After you have worked the naphtha well into the skin, rub sawdust into the hair and onto the flesh side three or four times to absorb the naphtha and dissolved grease. Shake out each application of sawdust until you have removed the naphtha-grease complex from the skin. Then rinse the skin in seven or eight rinses of clear water to remove any remaining salt, naphtha, or sawdust.

STEP 2a.

At this point, if you desire, the hair may be removed from the skin. (If you want to tan the skin with hair on, go directly to Step 3.) This is done by soaking the skin in a solution of hydrated lime, wood ashes, and water ($\frac{1}{4}$ pound hydrated lime and $\frac{1}{2}$ cup wood ash to 1 gallon of water) for several days until the hair can be pushed or scraped off the skin with a dull knife. Fully developed coats of hair from skins taken in the fall and winter are generally easier to de-hair because of the uniform length of the hair. Hides taken other times of the year take more time to de-hair because many smaller undeveloped hairs tend to stay in the skin when the longer hairs are sluffed off. After the hair has been removed, wash the skin thoroughly in several rinses of clear warm water and then place it overnight in a solution of boric acid and water (1 ounce boric acid crystals to 1 gallon water). This neutralizes the lime left in the skin from the de-hairing solution. After removing the skin from the boric acid solution, rinse it before going to Step 3.

STEP 3

The skin is now ready to go into the tanning solution where it will stay for seven days. To make the tanning solution, dissolve $\frac{1}{2}$ pound salt and $\frac{1}{4}$ pound alum per gallon of water, making enough solution to cover the skin. Stir the solution daily. After a week remove the skin from the solution, rinse it in clear water, and allow it to drain, but do not let it dry out. Rub warm neatsfoot oil onto the flesh side and, while keeping it out of direct sunlight, let the skin begin to dry. During the drying process, pull and stretch the skin in every direction. A board clamped in a vise provides edges over which you can work the hide back and forth to help in the softening process. Continue this at periodic intervals until the skin is dry. At this point the skin should be white on the flesh side, soft, supple, and ready to use.

If the skin dries too quickly or should you need to leave it for several days during this step and the skin gets stiff, merely dampen it with a wet sponge until it becomes limp again and resume the manipulation of the hide. To remove any tissue or unevenness on the flesh side of the finished hide, sand it with a piece of coarse sandpaper (#60 or #80 grit). This will leave a suede look to the hide and enhance its attractiveness.

Plastic buckets are recommended for holding the solutions. Chemicals can be purchased locally. Shoe repair shops sell neatsfoot oil; canning salt is available at your supermarket. Naphtha thinner, also called benzene, and hydrated lime can be obtained from a hardware store. Alum and boric acid can be purchased from a drug store. In reference to the use of all of these chemicals, be sure to read all labels and cautions and obey them. When handling the solutions use rubber gloves.

When using your finished leather, take advantage of its

natural thickness. You'll find the neck skin thicker than the back, the back thicker than the sides, with the belly skin being the thinnest of all. If you need a uniform thickness for your project, go back to your coarse sandpaper and a little arm action. A table belt sander can also be used for thinning down a hide but it can take off a lot of material quickly so "beware."

This is a tried and proven process and is used today by many professional tanners and taxidermists.

Lesson Plans

The following lesson plans are offered as a suggested and field-tested means of teaching this subject material. Activities have been adapted from the Department of Conservation's trapper education training course and have been taught by Department of Conservation employees as well as teachers and youth leaders.

Times are estimated for 50-minute class periods; however, the time needed for each lesson may vary depending upon the teacher and class. Pages marked as student handouts in the appendix may be reproduced for distribution.

No. 1

Title:	Introduction and History
Method:	Lecture, class discussion, film
Time:	50 minutes
Purpose:	To introduce the subject; to give a historical background; to acquaint students with objectives for the course.
Instructional Aids:	Library resources, films "In the Balance" or "Trapping—A Modern Day Necessity."
Facilities:	Classroom

Outline:

Lecture

- I. Introduction—Trapping serves several important functions in the state of Missouri
 - A. Recreation and Economics
 1. 10,000 trappers in Missouri.
 2. Brings closeness to nature and understanding of wildlife that few other sports offer.
 3. Provides additional income for many Missourians.
 4. Missouri among top raw fur-producing states—produces between 5 and 10 million dollars each year.
 - B. Wildlife management
 1. Can be an effective means to attain desired furbearer population levels.
 2. Used to collect data for research purposes.
 3. Harvest data useful in regulating seasons and

Two films "In the Balance" (19 minutes) or "Trapping—A Modern Day Necessity" (25 minutes) are recommended as part of the introduction to the course.

limits.

C. Animal damage control

1. Controls animals that attack livestock or damage crops and property.
2. Instruction offered to landowners through Department of Conservation wildlife damage control program.

II. History of trapping

A. Fur industry was a major factor in exploration and settling of country.

1. Indians and early settlers trapped for food and clothing.
2. Hudson Bay Company trappers and traders helped open trails to the west.
3. Famous trappers included Daniel Boone, Pierre Laclede, John Colter, Ewing Young, Jedediah Smith, Jim Bridger, Kit Carson, Lewis and Clark, and John James Audubon.
4. St. Louis became the center of the country's fur industry.

B. Equipment gradually improved.

1. Early traps included pitfalls, deadfalls, and snares.
2. Steel traps were invented in the 15th or 16th century and first used in France and Germany.
3. In 1823 in New York, Sewell Newhouse began manufacturing steel traps with interchangeable parts on a multiple production basis.
4. Foot-hold traps continued to be improved and increased success in capturing wary long-legged predators. These traps now have smooth jaws that are sometimes offset so they don't come together completely on an animal's foot.

Class Exercise

C. Recreate the life of an early trapper.

1. Have students pick an early trapper and research his life in books and encyclopedias.
2. Students should make oral or written reports telling about the lifestyle of the trapper and the importance of trapping in the history of this country.
3. Invite a local person who is interested in history or the lifestyle of early mountain men to visit the class wearing authentic skins. Have the person give historic accounts of early fur trapping and trading and how clothing and other items were made from the animals trapped.
4. Take a field trip to one of Missouri's many historical sites, such as Fort Osage.
5. Draw a map showing the Lewis and Clark Trail across Missouri.

Title: Missouri Furbearers, Trapping Regulations and Ethics

Method: Lecture, class discussion

Time: 50 minutes

Purpose: To acquaint students with the furbearing animals in Missouri; to explain the reasons for trapping regulations; to discuss what ethical behavior a trapper should exhibit in the sport.

Instructional Aids: Wildlife Code books
(available from Department of Conservation)

Facilities: Classroom

Outline:

Class Discussion

Materials needed: most current
Wildlife Code of Missouri book.

- I. Missouri Furbearers
 - A. Define furbearer (see glossary) and what animals are furbearers in Missouri.
 - B. Discuss the animals, their habits, habitat, and food.
 - C. Have students discuss how they might go about finding one of the furbearers and then luring the animal back to a certain spot.
- II. Trapping Regulations
 - A. Explain reasons for trapping regulations.
 - B. Have students read current regulations in Wildlife Code Book.
- III. Trapping Ethics
 - A. Emphasize that trappers need to behave ethically and responsibly.
 - 1. Trappers should always obtain permission from landowners to trap on their property.
 - 2. Sets should be selected for specific target animals.
 - 3. Trappers should be aware of other sportsmen and pets. Any nontarget animals caught should be released quickly and carefully.
 - 4. Traps should be checked at least once a day and animals removed.
 - B. Review Code of Ethics.

No. 3

Title: Tools of the Trade

Method: Discussion and demonstration

Time: 50 minutes

Purpose: To acquaint students with traps and other trapping equipment; to discuss what traps are used for what animals; to demonstrate how to set a trap.

Instructional Aids: Traps and trapping equipment (Instructor may want to call in a local trapper to exhibit and explain equipment or borrow equipment from the Department of Conservation.)

Facilities: Classroom

Outline:

Lecture and Demonstration

Materials needed: samples of traps,
flip chart available from the
Woodstream Corporation

- I. Three basic categories of traps
 - A. Foot-hold traps
 1. Restrain or hold the animal
 2. Can be used on land or in water
 3. Types
 - a. long spring trap
 - b. coil spring trap
 - c. underspring jump trap
 4. What traps are used for various furbearers (consult chart in module)
 - B. Body-grip traps
 1. Kill animal by grasping neck and back
 2. Used primarily in water and with smaller animals such as beavers and muskrats
 3. Most common type—Conibear
 4. What traps used for which animals (consult chart in module)
 - C. Cage traps
 1. Enclose animal in wire cage or wooden box
 2. Good for animals not so wary and in areas frequented by people and pets
 3. Examples
 - a. Havahart
 - b. P & S
 - c. Tender Trap
 4. What traps used for which animals (consult chart in module)
- II. Other Equipment
 - A. Upland trapping—display and explain significance

Class Demonstration

Materials needed: trapping equipment mentioned

of following equipment:

1. Backpack or trap basket
2. Digging tools
3. Sift box
4. Small, bent stick
5. Setting tarp or ground cloth
6. Pliers
7. Metal stakes or drags
8. Lap link
9. Metal grapple hook
10. Pan covers

B. Wetland trapping—display and explain significance of following equipment:

1. Trap basket
2. Small, hand axe
3. Wooden stakes
4. Drags
5. Roll of wire and pliers
6. Shoulder gauntlets, hip boots, chest waders
7. Ice hoe

III. Scents and Lures

- A. Best are those made from natural sources—urine, gland secretions
- B. Food based lures—may attract pets, other nontarget animals
- C. Not recommended to make own

IV. Care of Traps

- A. Inspecting and adjusting
- B. Pre-rusting
- C. Dyeing
- D. Waxing
- E. Storing

V. Setting Traps

Demonstrate how to set each trap available and allow students to handle traps and to set smaller traps.

Class Demonstration and Exercise

Materials needed: traps of different sizes and styles

No. 4

Title: Reading Signs and Making Trap Sets

Method: Class demonstration or field trip

Time: 50 minutes (half day or longer for field trip)

Purpose: To acquaint students with the tracks and patterns made by various furbearers; to teach students how to read signs; to demonstrate how to make trap sets.

Instructional Aids: Drawings of tracks and patterns, traps and trapping equipment (Unless the instructor has experience trapping, a Department of Conservation Wildlife Damage Control Agent or Outdoor Skills Specialist, or a local trapper should be called in to teach this lesson.)

Facilities: Classroom, wildlife area, or local farm.

Outline:

Demonstration

I. Tracks and Reading Signs

- A. Animals leave behind signs such as tracks, droppings, hair, and disturbed ground or vegetation.
- B. Expert trappers learn how to read signs and know what animals have passed through an area.
- C. Pass out drawings of tracks and patterns and discuss characteristics of each.
- D. If a field trip is possible, have an experienced trapper show students where to find signs and how to identify them. If tracks are found, have students make plaster casts.

Materials needed: drawings of tracks and patterns

Field Trip

II. Making Trap Sets

- A. Sets should be made to capture only a specific species.
- B. If a field trip is possible, have an experienced trapper make sets for students. If the area is close, have class return the next day to check traps.

No. 8

Title: Review and Testing

Method: Class discussion and participation

Time: 50 minutes

Purpose: To review the course; to test students' knowledge of the material taught.

Instructional Aids: Crossword puzzle in Appendix 1, suggested written and practical examination in Appendix 2.

Facilities: Classroom

- Outline:**
- I. Review the material that has been taught and ask students for questions.
 - II. Pass out the crossword puzzle in the appendix and have students complete as a further means of reviewing the material.
 - III. Administer a written examination to test their knowledge of the information. A practical exam may also be given to see if students know how to set a trap and make a trap set.

Materials needed: crossword
puzzle, written examination

Related Activities

Editor's Note: The following activities are suggested as supplements to a trapper education program. They may be used individually or combined to extend a course.

Skinning Demonstration

Invite a local trapper to visit the class and bring an animal to be skinned. Students can then see an animal skinned and fleshed.

Skinning and Tanning Project

As an advanced course in trapper education or an extra-credit project, students who have successfully trapped a furbearer, may want to try skinning, fleshing, stretching, and tanning their pelts. Follow the directions in the chapter on "How to Properly Care for the Fur of Animals."

Fur Auction

Check with your local Conservation Agent to find out if fur auctions are held anywhere in your area. If they are, visiting such an auction would be an exciting and educational experience for students.

Fur House Tour

Another worthwhile tour would be to a fur house where students can see firsthand how pelts are handled and processed. Check to see if there is a fur house near you.

Guest Speakers

Any number of interesting people may be available to visit a class. Members of the Missouri Trappers Association are willing to meet with interested youth or adults and to demonstrate trapping procedures. To obtain the names of members in your area, write Wildlife Damage Control Agent, c/o Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102.

Glossary

BAIT

A natural or artificial material used to attract an animal to a trap. Natural baits include other animals or chunks of meat taken from the carcass of another animal, eggs, fish, or other food.

BODY-GRIP TRAP

A trap designed to be used in water to capture and quickly kill an animal by snapping shut around the animal's neck and back. This trap is used mainly to capture semi-aquatic animals such as beavers and muskrats.

CAGE TRAP

A trap that captures an animal by confining it inside a wire or wooden enclosure.

DROWNING SET

Trap set used for semi-aquatic furbearers that drowns the animal when it is caught.

FOOT-HOLD TRAP

A trap that restrains an animal by holding it by the foot or leg. Foot-hold traps include the long spring, coil spring, and underspring jump traps.

FURBEARER

General term used to identify a group of animals that are harvested for their fur. Missouri furbearers that can be trapped legally for their fur are the coyote, bobcat, red fox, gray fox, mink, striped skunk, eastern spotted skunk, raccoon, muskrat, beaver, badger, and opossum.

FURBEARER HARVEST

Regulated, limited killing of furbearers for their pelts or to control damage.

HABITAT	Place where wildlife naturally lives and grows. Requirements for habitat include food, shelter, water and space.
LAP LINK	A metal ring attached to a stake to allow an animal to move around the stake without binding the chain.
LURES	Scents that are used to attract an animal to a trap. Basic types of lures are gland scents, food scents, and curiosity scents.
PAN COVER	A piece of cloth material or paper used to cover the part of the trap between the jaws where an animal steps. The cover prevents dirt from obstructing operation of the trap.
RUN	A channel excavated by a beaver or muskrat to allow easy access to its den.
SCENT "POST"	Dry, porous object such as a cow chip, piece of old stump, or a log that is 3-4 inches high and 6-8 inches wide. Scent is applied to the object.
TRAP BED	Hole dug in the ground in which traps are placed to conceal them.
WILDLIFE DAMAGE CONTROL AGENT	A person employed by the Missouri Department of Conservation to teach Missourians how to control damage caused by wildlife.

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Other Sources

Several organizations produce publications and visual aids that are available free or at reasonable cost.

Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102.

Some of the publications available are:

Mammal leaflets on beaver, bobcat, coyote, fox, mink, muskrat, opossum, raccoon, and skunks

"Animal Autographs" (tracks)

"Missouri Game Animals and Furbearers"

"Missouri Hunting and Trapping Digest"

"Wildlife Code of Missouri"

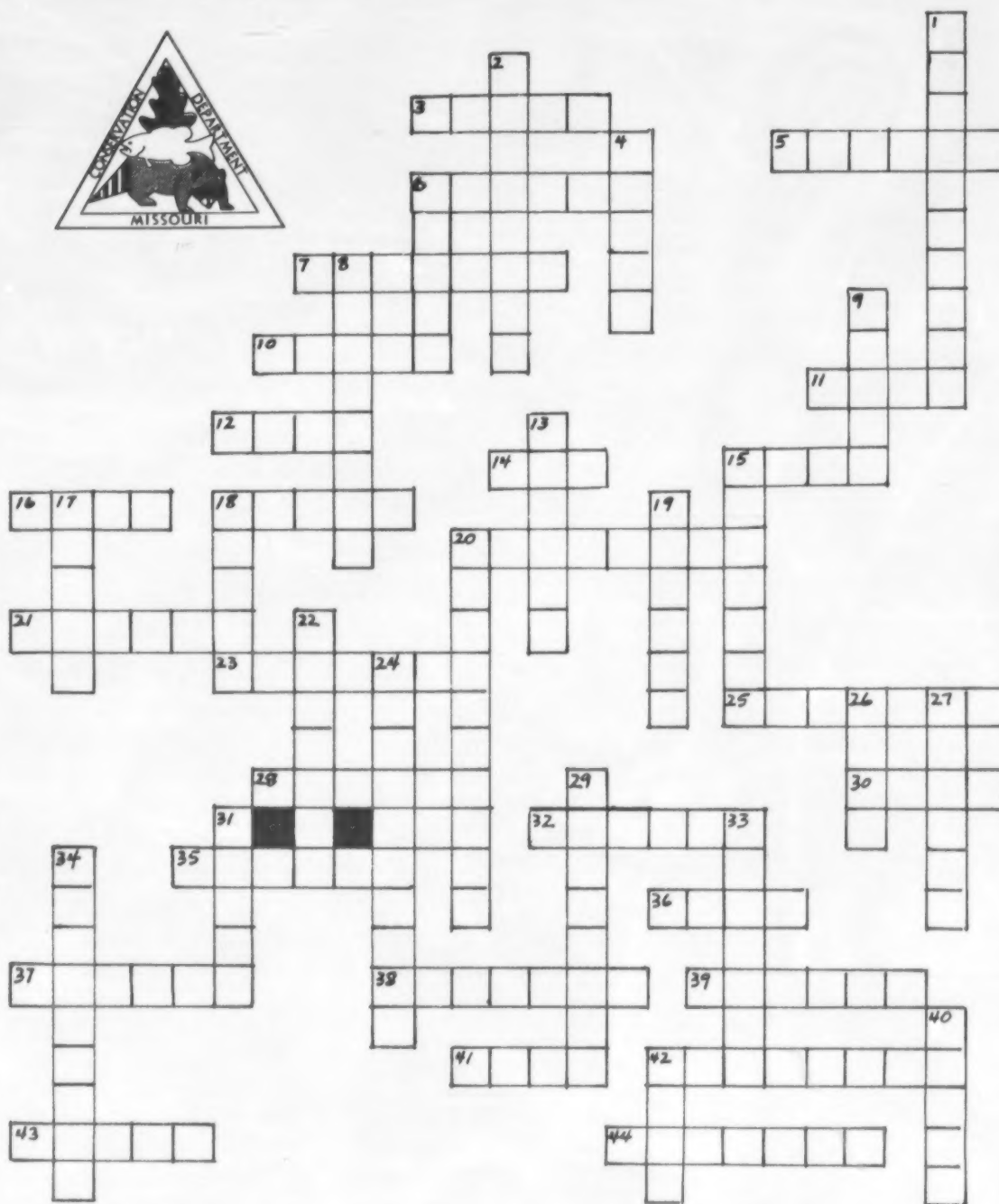
Please be conservative with your request. If you ask for more than five of any one publication, please justify in writing. These publications or any part thereof, may be reproduced for classroom use. Allow two weeks for delivery.

National Wildlife Federation, 1412 Sixteenth Street, N.W., Washington, D.C. 20036.

The National Wildlife Federation publishes a booklet entitled "Trapping and Conservation." A single copy is free; additional copies are 15 cents each.

Woodstream Corporation, Lititz, PA 17543.

Woodstream has available free of charge two publications "Trapping and Wildlife Management" and "Match your target to a Woodstream trap." A 25-minute, full-color, 16 mm film entitled "Trapping: A Modern-Day Necessity" is available for free viewing by writing Woodstream. Woodstream also produces a flip chart which costs \$12.95 and has 30 pages on traps, set locations, trapper responsibility, and care of pelts.



Alphabetized list of words in the crossword puzzle:

Badger
Bait
Beaver
Bobcat
Bodygrip
Boone
Cache
Cage
Carcasses
Colter
Coyote
Daily
Easier
Footprints
Fox
Ice hoe
Laclede
Leghold
Live
Mink
Muskrat
Newhouse
Opossum
Otter
Pelts
Permission
Permit
Raccoons
Recreation
Runs
Rust
Scent
Siftbox
Skunk
Smooth
Snare
Spoon
Sport
St. Louis
Tarp
Toothed
Trap
Trapper
Trapping
Urine
Waders
Weasel
Wildlife
Wood

ACROSS

3. Trappers are required to check traps _____.
5. A modified trap jaw that doesn't inhibit circulation in an animal's foot has _____ jaws.
6. A burrowing mammal with long claws on its forefeet, which make it an excellent digger.
7. City in Missouri that was the center of this country's early fur industry.
10. A noose-type trap that is now illegal.
11. Channels to a beaver's or muskrat's den.
12. A device for catching animals.
14. A mammal thought of as sly and crafty, this animal is difficult to trap because it is secretive and shy.
15. A mammal that is somewhat like a large weasel.
16. Type of stake used in water trapping.
18. A distinctive odor.
20. They are Missouri's most valuable furbearer and are most easily recognized by their "mask" and ringed tail.
21. An animal that lives both on land and in water, it is the largest North American rodent.
23. A person who traps furbearing animals.
25. This type of trap is now illegal.
28. A _____ is required to trap, possess, and transport animals in Missouri.
30. Traps are dyed and waxed to protect them from _____.
32. A small mammal with a long slender body, it is very aggressive, agile, swift, and sometimes attacks much larger animals with a quick, fatal bite.
35. A type of boots used to keep a water trapper dry.
36. A trap that captures an animal alive in a wire or wooden box.
37. A tool used to chip ice.
38. This most common commercial furbearer in Missouri is a small, shy, tree-dwelling mammal. It is active at night and its best defense is "playing dead."
39. Last name of the first white man to discover the geysers in what is now Yellowstone National Park.
41. Another name for a cage trap.
42. Type of trap designed to be used in water and to kill an animal quickly.
43. The skin of furbearing animals.
44. An important tool used to separate coarse dirt from finer particles when making trap sets.

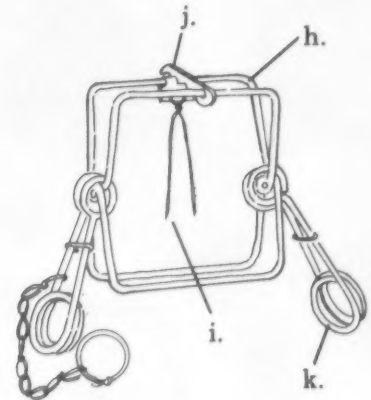
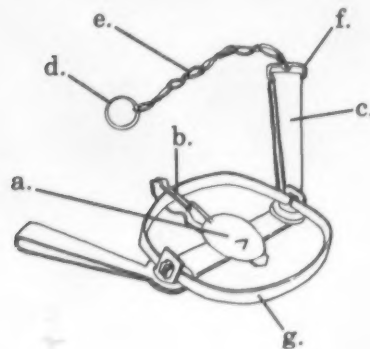
DOWN:

1. Tracks made by animals are like _____ made by humans.
2. Regulated trapping helps in the management of _____
4. One of the most effective scents a trapper can use.
6. A famous trapper of Kentucky and Missouri.
8. A historic sport that produced income, clothing, and food for the early settlers of this country.
9. A bushy-tailed mammal with glossy black fur and white stripes, it ejects an offensive-smelling odor when molested.
13. One of the largest wild mammals in Missouri; a member of the Cat Family.
15. A rodent living in water having a glossy brown fur, a long scaly tail, and a musk-like odor; one of the most abundant furbearing mammals in Missouri.
17. In Missouri this animal is considered an endangered species and cannot be trapped legally.
19. This mammal is often trapped to protect livestock and poultry.
20. One of the reasons people trap.
22. Last name of the man who established the trading post in Missouri that grew into the City of St. Louis.
24. Before trapping on private property a trapper should always obtain _____ from the landowner.
26. A ground cloth.
27. Using stakes in trap sets makes it _____ to find the animal.
29. The person who revolutionized traps by manufacturing them on a production line.
31. A place used for storage of food.
33. This trap is also called a foot-hold trap because it holds an animal by its foot or leg.
34. Dead bodies of animals.
40. The track or trail of an animal.
42. Used to lure an animal into a trap.

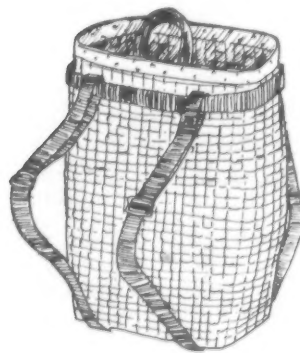
Appendix 2—Suggested Written and Practical Examinations

Written Exam

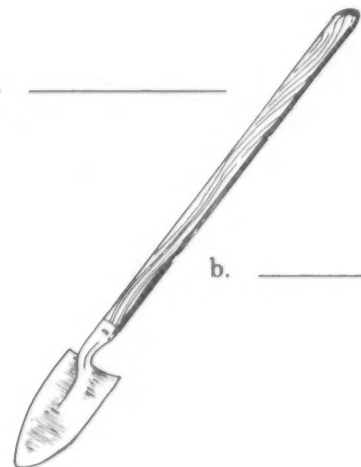
1. List three functions of trapping in the state of Missouri.
2. What are five practices of an ethical, responsible trapper?
3. Why are there laws regulating trapping?
4. List five Missouri furbearers that are legal to trap. Where would you set a trap to capture each?
5. What are the three basic types of traps that are used today and how does each work to capture an animal?
6. Label the parts marked on each trap.



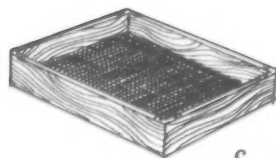
7. Write a short paragraph explaining why body-grip traps usually are not set in upland areas.
8. Identify the following tools:



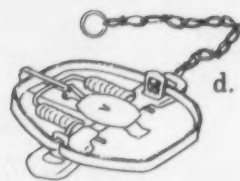
a. _____



b. _____

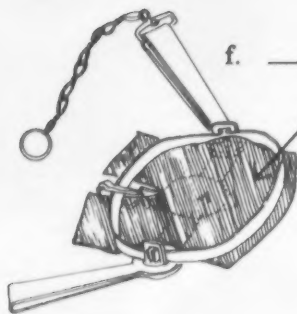


c. _____



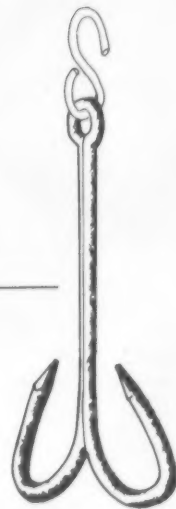
d.

e.



f.

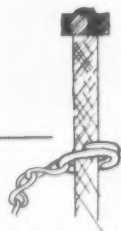
g.



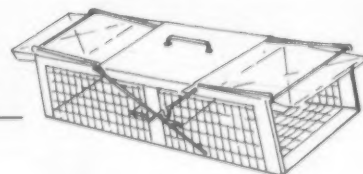
h.



i.

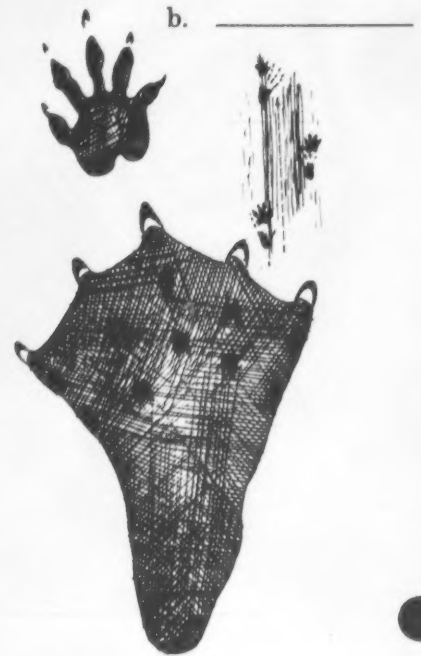


j.



9. Briefly describe the steps that should be taken to make a new trap ready for trapline use.

10. Identify the furbearer that made each of the following tracks (tracks are half their original size):



c. _____

d. _____



e. _____

11. Which furbearers are being trapped with these sets?

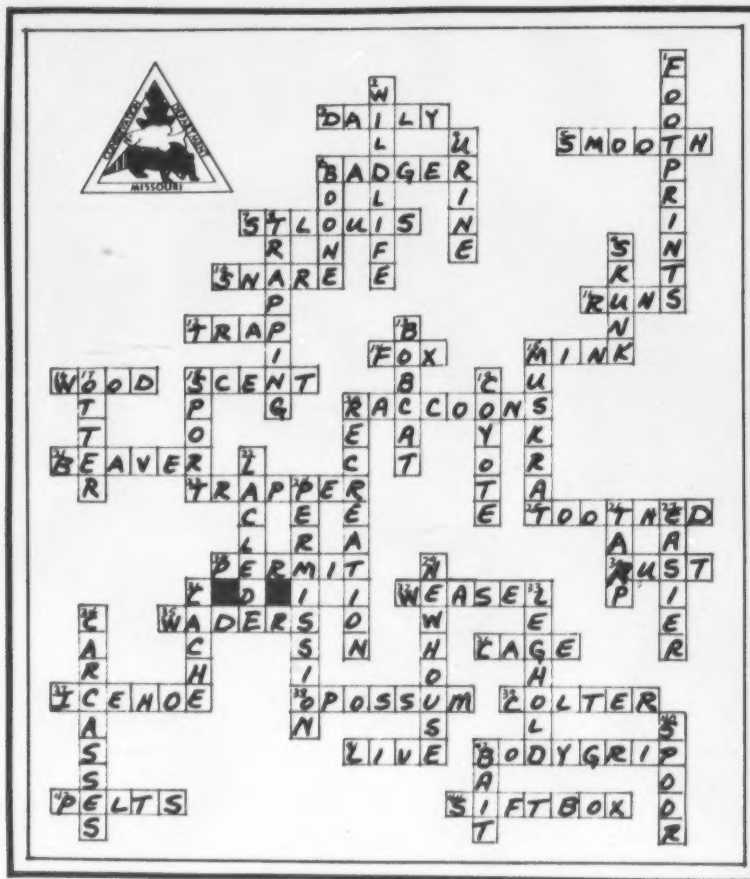


12. What Missouri furbearer is an endangered species and not legal to trap in the state?

Practical Exam

Students' knowledge of traps also can be tested by observing them while they handle and set actual traps. Have each student demonstrate how to properly and safely set a foot-hold trap. Take students outside to a location where holes can be dug and have each student demonstrate how to make a dirt hole set. If the group is large, divide students into small groups and assign each group a set to make.

Instructor's Key to Crossword Puzzle



Instructor's Key to Written Exam

1. Recreation and economics, wildlife management, animal damage control
2. See code of ethics, page 21.
3. Laws are established to regulate the harvest of each species and to ensure that a proper balance is maintained.
4. See chapter on Missouri furbearers, pages 21-36.
5.
 - a. *foot-hold traps*, see page 37.
 - b. *body-grip traps*, see page 39.
 - c. *cage traps*, see page 39.
6.
 - a. pan
 - b. dog
 - c. spring
 - d. ring
 - e. chain
 - f. swivel
 - g. jaws
 - h. jaws
 - i. trigger
 - j. dog
 - k. spring
7. Body-grip traps are not set in upland areas because the traps kill the animals when they are caught and do not allow nontarget animals, such as pets or livestock, to be released unharmed. Body-grip traps are designed to be used in water.
8.
 - a. trap basket
 - b. trowel or shovel
 - c. sift box
 - d. foot-hold trap (coil spring)
 - e. stake
 - f. pan cover
 - g. metal grapple hook
 - h. shoulder gauntlets and hip boots
 - i. lap link
 - j. cage trap
9. Inspect, pre-rust, dye, wax, see page 43.
10.
 - a. coyote
 - b. beaver
 - c. raccoon
 - d. opossum
 - e. badger
11.
 - a. double trap scent post—coyote, fox, bobcat
 - b. mound set—beaver
 - c. blind set—raccoon, mink, muskrat, beaver
12. the river otter

Specialists' Regions

Northwest Area

Louis F. Diebold
P.O. Box 26
Savannah, MO 64485
816/324-4672

Northeast Area

Wayne Martin
1710 E. McPherson
Kirksville, MO 63501
816/665-8075

St. Louis Area

Patti Baker
St. Louis Sub-Office
1221 South Brentwood Blvd.
St. Louis, MO 63117
314/726-6800

Southeast Area

Stephen J. Wilson
318 East Neal Street
Jackson, MO 63755
314/243-1143

Southwest Area

Richard Flint
214 West Pleasant
Aurora, MO 65605
417/678-2445

Kansas City Area

Lloyd Williams
Kansas City Sub-Office
Brywood Shopping Center
8616 East 63rd Street
Kansas City, MO 64133
816/356-2280

Central Area

Robert D. Staton, Jr.
303B North High Street
California, MO 65018
314/796-2669

Outdoor Skills Education Specialists will assist you in obtaining materials and scheduling equipment and films that are available from the Department of Conservation. They also offer workshops to provide training in several outdoor skills.



Consultants' Regions

District 1

Rodney J. Green
408 South Polk
Albany, MO 64402
816/726-3677

District 2

Hollis D. Crawford
Route 1, Box 21
Gibbs, MO 63540
816/332-7278

District 3

Neil W. Jenkins
1250 NE Tudor Road
Lee's Summit, MO 64063
816/524-6196

District 4

Charles D. Jordan
620 Hillcrest Drive
Knob Noster, MO 65336
816/563-3738

District 5

Wendell Jeffery
Route 5, Box 23
Eldon, MO 65026
314/392-3217

District 6

Al Palladino
Route 3, Box 447P
Marthasville, MO 63357
314/433-2821

District 7

Harold W. Thiele
7414 Dalgren
St. Louis, MO 63123
314/842-3870

District 8

Jack C. Woodhead
326 Cerny
Eureka, MO 63025
314/587-2076

District 9

Ross Allen
RR3, Box 101P
Galena, MO 65656
417/538-4130

District 10

Virgil L. Davis
803 Summerfield
Houston, MO 65483
417/967-2123

District 11

Gordon S. Griffin
806 Sherman Avenue
Charleston, MO 63834
314/683-6940

District 13

David B. Knisley
1409 San Miguel Lane
Fenton, MO 63026
314/225-3198

District 14

Larry Behrens
407 East Walnut
Shelbina, MO 63468
314/588-4252

District 15

Jim Pyland
Route 3, Box 64D
Kearney, MO 64060
816/635-5160

